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American Druggist

AN ILLUSTRATED SEMI-MONTHLY JOURNAL

OF

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MANUFACTURE OF SALT AT SYRACUSE, N. Y.

THE famous salt region of Onondaga County, in the State of New York, has for over a century been a centre for the production of this all-important substance. As long ago as 1770, salt from the salt springs then in existence was used by the Delaware Indians. Eighteen years later the white inhabitants began to make salt by the boiling process, near the site of the present city of Syracuse. The territory from which most of the salt is now produced is a government reservation whose status is established by a treaty made between the Onondaga Indians and the State of New York. The wells are maintained and the brine pumped by the State government, and the brine is delivered to the manufacturers at a royalty of one cent per bushel. The bushel is an arbitrary term indicating a net weight of 56 pounds or one half-hundredweight. The wells, which are sunk and maintained by the State, vary from 150 to 340 feet in depth. Brine is pumped from them which at 60° F. averages 50° to 70° on the salometer. According to Dr. Englehardt's standard table of equivalents, these figures range thus:

Salometer.	Baumé.	Per cent salt.	Pounds salt in gallon.	Gallons to 1 bushel.
50°	13°	13.250	1.206	46.41
70°	18.2°	18.815	1.755	31.89

As a more appreciable standard it may be mentioned that sea water contains 2.7 per cent of salt, and that it requires 350 gallons to make 1 bushel of salt.

Originally the tax or royalty was much higher than at present. At one time as much as 12 cents a bushel was charged the manufacturers. Since then it has been reduced, first to 6 cents, and finally, in 1846, to 1 cent per bushel. It is evident that at the higher rate a considerable revenue was derived from the wells. For the expense of building the Erie Canal a sum of $2,300,000 was appropriated from the salt royalty. This sum represents nearly one-third of the expense of construction, so that the salt makers are justified in their claim that but for the salt industry the Erie Canal might never have been made.

The salt deposits lie in rocks of the upper Silurian age. The old springs were found in the marshy ground surrounding Onondaga Lake. The waters of the lake are excluded from the salt-bearing strata by impervious marl and marly clay. The wells pass through beds of fine sand and clay. After penetrating these layers a gravel is reached which contains the salt water. The brine is pumped from the gravel beds into reservoirs, whence it is delivered through log piping to the different works.

The Onondaga brine contains several impurities. The principal is calcic sulphate, more familiar in the form and under the name of gypsum or plaster of Paris. This runs as high as one-half of 1 per cent referred to the brines, representing, therefore, 2 or 3 per cent of the dissolved salts. Calcium and magnesium chlorides, with traces of carbonic acid and oxide of iron, are also present. The iron oxide is only objectionable as spoiling the color of the salt, but owing to this its removal is imperative. The calcium and magnesium chlorides are deliquescent. Fortunately they exist in small proportions only in the brines. If in large quantity, they would make the salt moist and give it a tendency to cake, and eventually to become almost liquid. The calcium sulphate is not nearly so soluble as the other salts, and is partly precipitated in the evaporation, and most of it is removed from the concentrated brine. It is obvious that any insoluble matter would be considered an impurity, so that the manufacturer tries to remove this compound as completely as possible.

The salt is obtained by evaporation, either by solar or by artificial heat. In either case the first operation is to clarify the brine by settling. It is allowed to stand in vats in the open air or in factory buildings until the iron oxide has settled and the carbonic acid has escaped or has become precipitated.

At this stage the settling is sometimes aided by the addition of a little milk of lime. Alum or gelatin has been employed or suggested also as a clarifier. Two successive settlings in such vats are applied.

In the next step of the solar process the clarified brine is run into evaporating vats, where it is acted upon by the sun's heat, and gradually becomes concentrated. Movable covers or roofs are provided to be placed over the vats in case of rain.

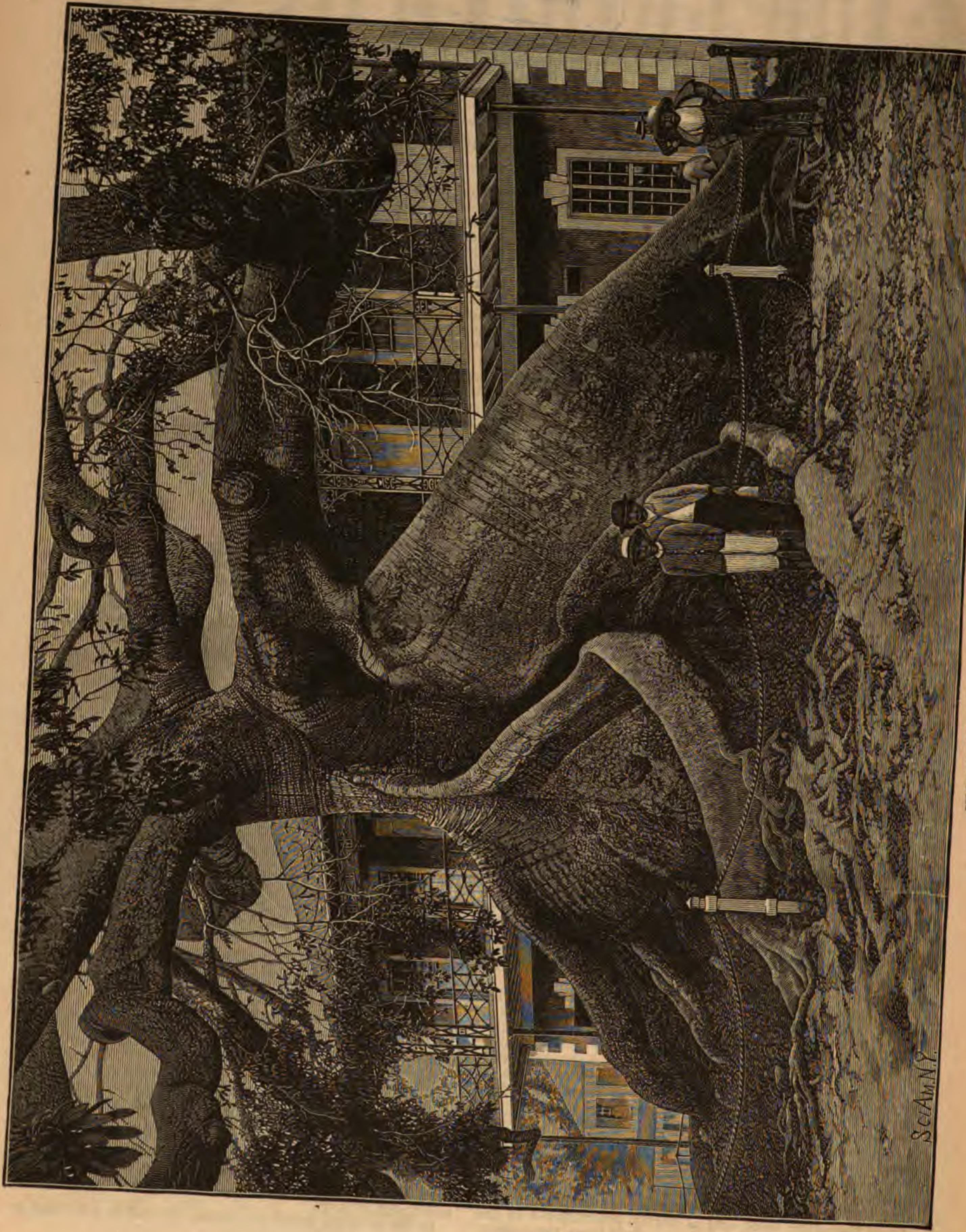
As it becomes stronger, the comparatively insoluble calcium sulphate begins to precipitate. The slow evaporation favors crystallization, and the salt begins to separate as large crystals, and is called "coarse salt." As soon as crystals begin to appear, the saturated brine, called "salt pickle," is run off into a fourth series of vats for final concentration. As the crystals accumulate in sufficient quantity they are removed and are washed in the fresh pickle. The object of this is to remove the strong brine, which contains a concentration of the calcium and magnesium chlorides. The product is then allowed to drain, and when sufficiently dry is removed to the storehouse. This is an outline of the process of making what is known as "solar salt."

Salt made by artificial heat is known as boiled salt. The term "factory filled" is applied to the purer brands. This term is indicated by the familiar letters F. F. branded on the large sacks. The kettle process is largely used at the Syracuse works. The brine after settling and clarifying is run into kettles heated by fires underneath. An iron pan with an upright handle is placed in the bottom of each pan.

As the liquid evaporates and the gypsum separates, it accumulates in these pans, and is from time to time removed and thrown aside. This is termed "panning from the kettle." It is here that one essential difference between the solar and boiling process appears. Calcium sulphate or gypsum is less soluble in hot than in cold brine, so that a better separation of this impurity is effected than in the solar process. Each kettle has a capacity of 100 to 120 gallons, and fifty or sixty kettles may be set in a row. As soon as salt crystals begin to appear, the gypsum pan is removed and the salt is taken out by the workmen, is washed with fresh brine, and is drained in baskets suspended over the kettles. Brine is run in as required from the central distributing pipe.

The difference in grain in solar and boiled salt is considerable. The solar salt is so coarse that to adapt it for many uses it has to be ground in mills. This is done in the factories, and the product is known as "ground solar" salt. The boiled salt is of a much finer grain, and by the addition of some suitable substance to the kettles the grain may be made still finer. This process is termed "cutting the grain." Salt thus made is called "anthracite salt." The material added consists of traces of such matter as glue, resin, soap, etc. While the process has been known for many generations, it is condemned by many salt makers.

In the modern washing process, the salt is delivered at



SILK-COTTON TREE IN NASSAU, BAHAMA ISLANDS.

one end of the apparatus through a chute. The brine enters at the same end and permeates the mass, and as the whole is kept in agitation the washing is very perfect. The salt saturated with the purer brine is drawn off and has to be dried. In the modern process this is done in centrifugal machines. There it is whirled around rapidly and the brine is expelled thoroughly by centrifugal force, exactly as sugar is treated for the expulsion of syrup. The separation is, of course, much more complete than where gravity alone is relied on, as in the draining process. When it is remembered that the calcium and magnesium chlorides are mainly present as ingredients of the residual brine, the importance of reducing the amount of this brine as much as possible is evident.

What the future of this historic industry will be is not absolutely certain. The expense of making boiled salt is largely due to the cost of fuel. The kettle process, although a relic of the last century, has not yet been superseded. Success has been attained in utilizing anthracite coal dust. Forty to forty-five bushels of salt are produced with the combustion of one ton of anthracite dust costing $1.75. Some years ago but thirty-seven bushels were produced with the consumption of one ton of bituminous coal costing $4.10. Yet this saving is offset by the fact that the evaporation per pound of fuel is only 5.83 pounds of water—less than half the work of a good steam boiler. One most serious menace comes from the West. Michigan, Ohio, and Kansas are now strong competitors with the New York works. There are two layers of rock salt, forty-five and fifty-four feet thick, seventeen miles south of Syracuse. These may be instrumental in changing the aspect of things in the near future.

The first leases in lots under the auspices of the State took place in 1797. The product for 1798 was 59,928 bushels of solar salt, under the superintendence of William Stevens. In 1889, under Superintendent P. J. Brummelkamp, 2,916,923 bushels of solar and 2,448,138 bushels of boiled salt, making an aggregate of 5,365,061 bushels, were produced. This is not high-water mark. The following table gives the years of maximum production and the amounts produced:

Year.	Solar salt.	Boiled salt.	Total of both kinds.
1862	1,983,022	7,070,852	9,053,874
1868..	2,027,490	6,639,126	8,666,616
1870....	2,847,691	6,260,422	9,108,113
1871..	2,464,404	5,910,492	8,374,896
1882..	3,032,447	5,307,773	8,340,220

Since 1882 the production has constantly decreased.

The State exercises a certain supervision over the manufacture. The salt, after making, must be stored at least two weeks before shipment. Before and after the storage period it is inspected by the State inspector. The product as delivered to the public is exceedingly pure. It is gratifying to know that it compares with the finest foreign product in freedom from objectionable magnesium and calcium compounds.—*Scientific American.*

THE SILK-COTTON TREE.

BY J. F. COONLEY.

THE sebae, or silk-cotton tree, *Eriodendron anfractuosum*, is a native of the West Indies. The one represented here is a very wonderful and interesting specimen, now existing at Nassau, N. P. Its branches spread one hundred and seventy feet, and would extend still further, but are cut off frequently, as they encroach on the police barracks. The huge roots seen in our picture spread nearly forty feet above the ground. When we take into consideration that here is a tree spreading its branches nearly or quite ninety feet northeast and southwest from its trunk, that owing to the rock on which it grows will not admit of its roots penetrating the earth to support such an immense spread of limb and foliage, we have to admire the wisdom of nature in building the immense braces or supports in the form of roots by which this mass is upheld, and those all, or nearly all, on the surface of the ground. Several of the spaces between these roots would hide a horse completely from sight. The foliage falls near spring, and in a few days it starts again. I have seen it with bare branches Saturday evening and thick with foliage the following Monday morning. It seems magic the way the foliage develops. The immense roots and the extreme spread of the branches of this particular tree may be due, to a great extent, to its peculiar location. It stands in the rear of the public buildings, and is by them protected from the high winds from the sea and the hurricanes, and to that fact may perhaps be attributed many of its peculiarities. At one season of the year, near spring, it sheds a silky fibre like cotton, only much finer, that covers the ground for a long distance wherever the wind takes it. This fibre probably gives it its name of the silk-cotton tree, by which it is familiarly known. The engraving is from a photograph of the tree. —*Scientific American.*

THE MANUFACTURE OF HYDROGEN DIOXIDE.

BY A. BOURGOUGNON.

IN 1878 I manufactured hydrogen dioxide on a commercial scale, and the following is a description of the method I adopted for the preparation of this bleaching compound:

The first step, and a very important one, is the hydration of the barium dioxide. Into a suitable vessel—an ordinary cylindrical stone pot, about half-full of water—the powdered dioxide is slowly poured, the mixture being well stirred with a wooden spatula during this operation, and continued after its completion for about twenty minutes. Then the mixture is left alone, and stirred every half-hour or oftener for about ten minutes until the hydration is completed. This operation requires from three to four hours; the barium dioxide forms then a thick, perfectly white and smooth, pasty mass, resembling white clay mixed with water.

While the hydration is progressing, a mixture of water and hydrofluoric acid is made in a vessel lined with sheet lead, and surrounded with ice, or simply with water in which lumps of ice are placed from time to time, so as not to allow the temperature of the acid mixture to rise above 10° C. during the operation.

All things being properly disposed, the hydrated barium dioxide is added, in portions of three to four pounds at a time, to the acid mixture, stirring all the time to mix the contents of the vessel thoroughly. All the barium is transferred to the acidulated water in about two hours, and the agitation continued for four hours. If the operation has been well conducted, all the barium dioxide is transformed into fluoride, which falls to the bottom of the vessel. When this precipitate is well settled, the supernatant liquid is decanted into a vessel similar to the one used for its production, and also surrounded by ice water. The clear liquid contains an excess of acid and impurities derived from the materials employed; its color is yellowish, and it must be purified to insure its keeping properties.

The impurities which are to be removed are chiefly ferric oxide, alumina, and manganese oxide. To the cold solution of impure hydrogen dioxide small quantities of hydrated barium dioxide are added at a time and well stirred. When the last traces of acid are saturated, the appearance of the liquid suddenly changes, from a bright yellow it turns to a grayish color, and the impurities are separated and collected at the surface of the liquid.

Without losing time, the liquid is filtered through a cheese cloth stretched on a frame, and received in a vessel which contains a small quantity of sulphuric acid diluted with eight to ten times its volume of water (acid 1 ounce, water 8 to 10 ounces). This filtration must be quickly done. As long as the solution is alkaline there is great danger of decomposition and loss of oxygen. If the liquid is thrown upon the filter, the latter will be quickly clogged, the filtration stopped, and the hydrogen dioxide will rapidly decompose, emitting large bubbles of oxygen with a hissing noise; but as the precipitated impurities collect first on the top of the liquid, if the solution is siphoned from below these impurities the liquid filters quickly and satisfactorily.

The filtered liquid is tested for barium, and sulphuric acid is added to it until all is removed. The liquid is left over night, the precipitate of barium sulphate settles, and the perfectly clear and colorless liquid is ready for the market. All the precipitates are separated by pressure from the liquid they may contain, and the liquid so obtained is added to the water employed in the next operation. I employed the following proportions:

Barium Dioxide	60 pounds
Hydrofluoric Acid	25 "
Water	40 gallons

and obtained nearly 40 gallons of hydrogen dioxide. The strength of the acid was about 33 per cent.—*Journal of the American Chemical Society.*

Ginseng and its Cultivation.

THE great demand and high prices paid for the dried roots of the little native plant, so long known by its Chinese name of *ginseng*, very naturally incites inquiry in regard to its history, propagation, and cultivation. For how many centuries this root has held a high position in the *materia medica* of China is unknown, but it must have been considered a valuable medicine for ages, because in the great forests of Chinese Tartary where it once grew in abundance it is now nearly or quite extinct. But the Chinese, who change not in their opinions or habits, believe that ginseng is a veritable panacea for "all the ills that flesh is heir to," so continue to seek it wherever it is to be found, even in the land of the barbarians or that of the United States. Great must have been the rejoicing among the Chinese doctors when they learned that the precious plant had been found here, and in the same latitude and under similar conditions as in Chinese Tartary; but they appear to have kept very quiet about it for many years, and yet all the time getting a considerable quantity from this country through their English agents and for a far less price than it could be obtained at home.

Linnæus, when giving a scientific name to the American ginseng, must have considered it closely allied or identical with the Chinese plant, for he gave it the generic name of *Panax*, from an old Greek name used by Theophrastus to indicate a panacea or remedy for all complaints of the flesh; then added the specific name of *quinquefolium*, that is, five-leaved, and so it stands to-day in botanical works *Panax quinquefolium*. There are several native species of *Panax*, but none of them possess the aromatic, pungent taste of the one known as ginseng, therefore not in demand for either home use or export. That ginseng possesses any special medicinal properties is very doubtful, although its long and continued use among the Chinese would rather lead us to think otherwise; but, like many other medicines in constant use among the Chinese, its supposed valuable properties may be ascribed to fashion or the effects of imagination. We are more inclined to think that the medicinal virtue of this root is wholly imaginary from the fact that the Chinese doctors claim that the roots of different shape possess widely different medical properties, although this may be only an excuse for a little sharp practice in increasing charges while attending wealthy patients. For instance, when the ordinary dry roots of ginseng are worth their weight in silver in China, should one be found assuming the form of a man with body, legs, etc., it will readily sell for its weight in gold, and perhaps be doled out only to such invalids as are able and willing to pay for such luxurious medicine. But we are not so much interested in what becomes of the roots as to how we are to supply the increasing demand.

Ginseng is indigenous to the greater part of the cooler regions of the United States. In Georgia and Alabama it is found in the mountains and thence northward along the elevated plateaus, gradually descending to near the sea level in some of our Northern States. It appears to thrive best in loamy soils, such as are usually found in sugar maple and oak forests at the North. Shade seems also to be essential, for when the plants are exposed to the direct rays of the sun they soon die out, and for this reason open field or garden cultivation of the plants has rarely or never been attended with success. The proper way to start a plantation is to select a piece of land at the edge of some forest where the plants are found growing wild. Then clear out all the underbrush and small trees, leaving just enough of the larger ones to afford the shade required. This should be done in spring or during the summer. Then break up the surface of the soil with a harrow, steel rakes, hoes, or other implements to the depth of two or three inches, removing all weeds, grasses, and their roots. The bed thus prepared will be ready for the reception of seeds and small unsalable roots as collected in the autumn, the season of ripening depending somewhat upon latitude.

Ginseng berries are of a crimson color when ripe, each containing two seeds, produced in small clusters at the top of a central peduncle elevated above the principal leaves. When gathering the seed the roots may also be dug up, and all small and unsalable ones preserved and replanted in the prepared bed. The seed should be rubbed from the pulp very carefully with the hand, and then sown, or better pressed into the ground with the finger about half an inch deep, and one every six inches along the row. The rows should be from one to two feet apart for convenience in removing weeds, should any appear. Both seeds and plants should be in the ground before hard frosts occur in autumn, for when these come the leaves of the large trees will fall on the bed and give the natural protection required.

The following season no cultivation will be needed—if the bed is thinly covered with leaves—except to cut out sprouts and remove any large, coarse weeds which may spring up from seeds or roots left in the ground. If winds blow away the leaves needed as a mulch, a few old dead branches of trees may be scattered about to hold the mulch in place. At the end of the third season the roots will have reached a remarkable size and may then be dug, and the same bed worked over and restocked with seeds or small plants. Some who have tried it say that raising ginseng can be made profitable where a man has suitable land in the forest or grove near at hand. The cost of preparing a bed cannot be very much, and the seed can be obtained from the wild plants in our forests.—A. S. FULLER, *American Agriculturist.*

Increasing the Sensitiveness of Photo. Films.

THE following process is by York Schwartz, of Hanover, Germany. It consists in mixing the materials for making the film with, or coating the photographic films with formaldehyde or a compound of formaldehyde with bisulphite salts.

The process is based on the discovery that the sensitiveness of silver compounds to light is materially increased, or that the effect of light on the same is continued, by the presence of formaldehyde, or a compound of formaldehyde with a bisulphite of an alkali metal or of ammonia or of substituted ammonia (capable of forming bisulphite) in the sensitive silver compounds.

For photographic purposes these discoveries may be utilized as follows: First, by adding one or more of the specified compounds, either alone or in mixture with other substances, to the substances for making the films, at the time of the production of the sensitive film; second, by bathing the finished photographic film in a solution of the said compounds or mixtures before the film is exposed to light; and third, by treating the photographic film after exposure with a solution of the said compounds or mixtures. In this case the changes produced in the film by the action of the light are continued, so as to obtain in this manner the same result as by a correspondingly longer exposure to light.

The application of the said compounds constitutes an important improvement in the manufacture of photographic films, because they possess in an increased measure all advantages of the substances hitherto employed for similar purposes, without sharing their faults—for instance, the tendency to form clouds or specks or of imparting a yellowish tint to the film.—*Scientific American.*

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It is reported that Emperor William has chosen Baron Falkenhausen to study the action of Reiger's new cure for diphtheria. Thousands, it is claimed, have been cured by this wonderful remedy, which is said to be a thick, oily fluid manufactured from plants growing wild in certain districts.

Do Cats Spread Disease?

THE QUESTION OF DOMESTIC ANIMALS CARRYING CONTAGION IS AN INTERESTING ONE.

A PECULIAR incident occurred in this city recently. A case of diphtheria broke out in a certain neighborhood, and to insure safety from the disease a family sent their child to another part of the city to remain for a time. In this locality there was a case of scarlatina, and the little child contracted the disease, it is supposed, from playing with the cat which came from the infected house, and died from the effects. Another case is cited where children contracted the diphtheria from playing with a cat belonging to a family where the disease prevailed. Leading physicians say that while there are quite a number of single cases, the disease cannot be considered epidemic.

In studying the best methods of preventing an epidemic much attention is being paid to the question as to whether domestic animals, cats especially, do carry contagion or not. Physicians disagree in regard to this theory. Dr. H. M. Lash is of the opinion that there is no doubt that infectious diseases can be spread by animals; cats especially, by being handled by various people, are liable to carry the germs of disease in their coats, and these germs, coming in contact with a person's hands or clothing, under certain conditions develop the disease. Dr. Lash favors the opinion that clothing, money, letters, and the atmosphere will all carry the disease germs, and patients afflicted with contagious diseases should be quarantined to insure safety.

Dr. Runnels holds that while the theory of a child's contracting the scarlatina from playing with a cat is possibly tenable, it is hardly probable. He has known of no such case. It is now a disputed theory among physicians as to whether the scaly particles that fall from the persons of scarlatina patients are infectious or not. It has been the general opinion that this was the most contagious stage of the disease, but experiments have shown that while in some cases these scales have proved infectious, in other cases they have not. Dr. Runnels shares the opinion of a noted Chicago physician who is considered an authority on the diseases of children. The physician in an address stated that certain diseases, as measles, scarlatina, and diphtheria, are peculiar to children, and all children are liable to them. He believes that if a lot of children were taken out to an island and isolated from every other human being and animal, even in the purest atmosphere, they would have these diseases.

Dr. Runnels is of the opinion that while a dog or cat might possibly carry a germ of disease which would prove infectious, the person would have to be liable physically to take the disease. He does not think that money is liable to carry infection, unless it has been in the mouth of a patient and then another person takes it in his mouth. The atmosphere, too, in Dr. Runnels' opinion, can hardly be considered a medium for spreading disease from different parts of the country, since the currents of air are hardly the same outside a radius of 200 miles.

Dr. T. N. Bryan has little faith in the theory that cats carry disease; while it is a possibility, it is not a probability. There are extremists in everything, and the bacteria or germ theory is carried to extremes in some cases. Thirty-five years ago diphtheria was not known. It first broke out in Pennsylvania a few years later. While there are genuine cases of diphtheria nowadays, much of the so-called diphtheria is various kinds of throat trouble. Danger of contracting disease lies more in lack of cleanliness and good sanitary regulations than in contact with the so-called germs. Contagious diseases often run through families and neighborhoods from some local cause, as bad drainage, etc.—*Indianapolis Sentinel.*

* * *

Removing Lime from Sugar Pans.—N. Oleson, Winneshiek Co., Iowa: The easiest way to remove the lime deposit from evaporating pans is to use muriatic acid and soft water, in the proportion of 1 pound of acid to 1 gallon of water; mix enough to cover the bottom well. It will dissolve the scale in a short time, so that it can be removed with a brush. It should be applied cold, and may be used repeatedly with equally good effect.

Dangers of Gasoline.

THE *Pantagraph* gives an account of two recent cases at Normal, Texas, which should serve as a warning to those who use gasoline or coal stoves.

A short time ago Mr. John W. Gee and his wife and six-months-old child came to Normal from El Paso. He came to attend the university, and they rented two upstairs rooms. In one of the rooms they had a gasoline stove and did their cooking, and the other was used as a sleeping room.

One morning they arose about 5 o'clock, and were heard for the last time about 6 o'clock. At 7 o'clock the Gee baby was heard crying, and a neighbor went upstairs to ascertain the cause. The baby was in the sleeping room, and she picked the child up and opened the door to the other room, which the Gees used as a kitchen. The bodies of Mr. and Mrs. Gee, lying in a cramped position, met her gaze. The sight was too much for her and she ran shrieking down the stairs and fainted.

Mr. G. H. Warner, who lives next door, came in, and, detecting the odor of gas in the room in which the bodies were, opened the doors and windows and attempted to resuscitate the man and woman. The bodies were cold and his efforts were of no avail.

At the inquest Mr. Warner testified that he turned off the jets in the gasoline stove, opened the windows, and the stove was a new two-burner.

Prof. B. P. Colton, professor of chemistry in the Normal University, was called, and said that the natural odor or fume of gasoline was not suffocating; that the gasoline stove in ordinary running can, and does sometimes, produce a carbonic acid gas that would cause an intense headache, but would be slow in its effects. He said, also, that it produced a carbonic oxide when only partial combustion occurred, which would prove fatal if a full breath was taken. It is the same as that formed in hard-coal stoves.

The jury rendered a verdict to the effect that Mr. and Mrs. Gee came to their deaths by inhaling carbon monoxide gas produced by a gasoline stove. The faces of the dead looked perfectly natural and gave evidence that the grim reaper's work was done quickly. The baby was slightly affected by the gas, but is now all right.

The room in which the accident occurred is a small one, and the windows and doors were closed tight. The couple were dressed, and had apparently had breakfast. The stove had been used, and from some cause, which does not clearly appear, gas was generated. It is believed that this was heavier than the air, and hence hung in a thick mass near the floor. The supposition is that Mrs. Gee stooped down for some purpose, and, getting a breath of the poisonous vapor, fell. Her husband, in attempting to pick her up, met the same fate and fell dying beside her. This supposition is formed from the position of the bodies. For some time after the windows had been opened there was a strong smell of gas in the room. Prof. Colton declared that the gas was so deadly that one breath was sufficient to destroy life.

Prickly Heat.

IN many persons the eruption known as prickly heat comes from the corrosive action of the acid perspiration. It is worse whenever the clothing has an opportunity to rub the skin. In cases of persons having delicate or thin skins, much relief may often be obtained by applying a lather of soap and letting it dry in. The soap is sufficiently alkaline in its nature to neutralize the acid of the perspiration and stop its corroding effect. The soap used should be of the finest kind. As a rule, chafing is due to the same cause, and can be cured by the treatment mentioned. Some persons find the use of soap much more beneficial and satisfactory than that of vaseline or oil of any kind. The oil acts merely as a lubricant and to soothe the inflammation. The soap does the same, but also removes the cause of the trouble to a great extent. In applying the soap to infants extreme caution should be used. Only a small surface should be soaped until certain that no injurious results follow. Some persons get relief from bathing with a weak solution of bicarbonate of soda.—A. M. WILLIAMS.

Ether Drinking in Ireland.

A *Herald* correspondent had a long and interesting conversation yesterday with Dr. Norman Kerr, president of the Society for the Study and Cure of Inebriety, on the remarkable spread of ether drinking in the North of Ireland.

As an indication of the extent to which this strange and pernicious habit has increased, it is sufficient to state that in the single village of Cookstown not less than two tons of methylated spirit, which is practically pure ether, are consumed annually. How many tons of the drug are swallowed by the population of the counties Derry, Tyrone, and Armagh, where the habit is spreading with alarming rapidity, it is impossible to say for want of accurate information. The amount, however, must be enormous.

"Undoubtedly there must be special reasons why this ether habit should be limited to such a comparatively small region; but I must admit that in spite of our best efforts we are yet unable to state with certainty what those special reasons are. It is almost impossible to obtain reliable statistics as to the amount of ether sold and the classes of society who indulge in it most largely. For evident reasons the situation is not painted nearly as black as it really is, and even the priests, who are fighting strenuously against the ether habit, will not tell us what they know, inasmuch as a foolish idea has been put forward that Roman Catholics are the chief victims to ether intoxication.

"The intoxicating effect of ether is much quicker in its action than that of alcohol. A man can be perfectly sober at noon, take a drink of ether, be blind drunk at a quarter to one and sober again three-quarters of an hour later, so you see it is literally true that an ether drinker can get drunk and sober half a dozen times in a single day. I explained this curious phenomenon to a medical friend of mine, who, incredulous, determined to experiment with a dose of ether upon himself. I poured out for him about half a wineglassful, which is sufficient to produce drunkenness in one unaccustomed to the drug. He swallowed it at a gulp, nearly burning out the roof of his mouth, and within half an hour he was dancing about the room like a wild man, and became so pugnacious as to drive his clenched fist through a pane of glass, thereby cutting his wrist severely. A little later he was perfectly sober, the effects having entirely passed away, and he would only be convinced that he had gone through the antics I described when I showed him the cuts upon his hand."—From the London Edition of the *Herald.*

Gamboge.

GAMBOGE is mostly imported in cases with an inner covering of coarse calico, usually about a picul (133⅓ lbs.), sometimes only half a picul, and not infrequently about 250 lbs. in weight. The drug appears most frequently in rolls of various length, sometimes solid, more often hollow in the centre, that shape being produced by the method of collection of the gum, which is caught from the trees in bamboo sticks, the latter being peeled off when the juice inside has hardened. The pieces often bear the impress of the bamboo. Occasionally we receive gum in more or less shapeless blocks and lumps, which clearly reveal that they have been packed in pulp leaves. Gamboge is exceedingly liable to adulteration at the place of shipment, and it is also often met with in a damp state. The adulteration usually consists of sand or heavy stones, which are deftly placed within the bamboo tubes in which the gamboge is moulded, before the gum has hardened. The museum at the London drug warehouse also contains specimens of a gamboge within which were found concealed solid lumps of lead, seriously affecting the weight of the drug. Years ago gamboge sometimes arrived with the bamboo tubes still around it, but this mode of exporting it has, too, become obsolete. The exports of gamboge from Singapore are returned as follows: 1887, 215 piculs; 1888, 298 piculs. Gamboge, as its name indicates, is found in the forests of Cambodia, and also in the eastern provinces of Siam. For some years the quantity of this gum brought to market has greatly diminished, and its scarcity has increased the price.—*Chemist and Druggist.*

Chinch Bug Lymph.

PROF. F. H. SNOW, State Entomologist of Kansas, has been experimenting for two years to perfect his plan for the spreading of a contagious disease among chinch bugs with a view to exterminating this pest of the Western farms.

He has just sent out fifty packages of inoculated bugs, instructing the receivers to place the dead bugs in a jar for forty-eight hours with from ten to twenty times as many live bugs from the field. In this way the disease is to be communicated to the live bugs in the jar. These sick bugs being deposited in different portions of the field of experiment, are expected to communicate the disease while moving about among the healthy bugs.

Actual experiment has shown the efficacy of the scheme. The disease was successfully introduced from Prof. Snow's laboratory into the States of Missouri, Nebraska, Indiana, Ohio, and Minnesota, and into various counties of the State of Kansas, and the chinch bugs in these localities were exterminated. Farmers there declare that their fields were saved from devastation.

Prof. Snow has found that there are three different causes to which may be ascribed the rapid dying of chinch bugs. The first and perhaps the principal cause in his experiments is the attack of a certain bacterial germ. Myriads of the minute animated atoms may be seen with a microscope in the body of the diseased bug. The second cause is the growth of a white fungus, the spores of which are carried by the wind, and are thus easily scattered over the entire field. The third cause is the presence of still another fungus, which differs from the white fungus in color. These fungi have scientific names and have been described and studied by various scientific men.—*New York World.*

Care of Mocking Birds.

YOUNG mocking birds cannot stand a cold temperature. The cage should be covered up at night and placed near the stove. A fall of temperature from 80° to 40° is too much for old or young. All birds should have their cages covered up at night. The food for young mocking birds should be meal and milk, and occasionally minced fresh meat. Animal food finely chopped up and well soaked in milk should be their first feed. Grasshoppers, spiders, or meal worms should be given the old ones, and, of course, the regular diet of mocking-bird food. Several formulas for making this food could be given, but it can be purchased so cheaply at any bird store or druggist's that it would not pay to bother with it. During the moulting season it is well to put a rusty nail in the drinking water.

Ingrowing Toe Nails.

A WRITER in the *Scientific American* contributes the following remedial treatment for the above-named trouble:

Raise the ingrowing part as much as possible by packing with lint or cotton beneath. Allow this to remain a day or so. Remove this and now put in its place mercuric oxide, HgO, easily obtainable at any drug store. Press in a little cotton to keep the mercury in place. Cleanse the parts every day or two, but be sure the mercury is kept over and around the ingrowing part. The mercury seems to destroy the nail where it touches it, and at the same time deadens sensation without producing any deleterious effects.

Reliability of the Lactometer.

THE lactometer does not tell "the whole truth and nothing but the truth." It ignores the fat of milk. The richer the milk the poorer the lactometer makes it. A good supply of fat aids all the functions of life, and helps the digestion of the starchy foods. Too much care cannot be bestowed in securing pure milk from healthy cows fed on good, sound food. Large cities can only secure pure, sound milk by intelligent inspection, not only of the milk but of the dairy, so that all food and surroundings shall show the best sanitary conditions.—N. ROTHER.

Artificial Rubies and Sapphires.

THERE was quite a sensation on November 10th at the Academy of Sciences, writes our Paris correspondent, when M. Frémy uncovered the sparkling display of rubies produced synthetically by M. Verneuil under his guidance. There they were, perfectly rhombohedric, blood-red, and brilliant, not large perhaps, but in a thick crust, nearly one inch deep, still adhering to the sides of the broken crucible. He explained that the process was substantially the same as that followed a year or two since and mentioned at the time in the *Chemist and Druggist*, namely, heating together anhydrous alumina and potassium fluoride with a trace, 1¼ per cent, of chromium oxide. The only chemical differences were that this time the mixture was rendered alkaline with potassium bicarbonate, and the mingling of the components was purposely left imperfect so that the combination should take place between the volatilized elements, and the crystals could grow by "feeding," as is done with crystals by the wet process. Another difference was in the manipulation. Instead of using a gas furnace, they were enabled, through the courtesy of MM. Appert, the glass manufacturers, to keep large crucibles constantly heated for one week at a temperature of 1,300° C. In this manner batches of 3 kilos were obtained, and now shown, to the Academy, out of 5-kilo charges.

The crust inlaying the implement consists of perfect crystals, easily taken apart by simple rubbing. The largest weigh 75 Mgm.—about one-third of a karat. Chemically, there is no doubt, the crystals are identical with natural rubies; but to ascertain their industrial value some were cut by a lapidary into the usual rose shape, and pronounced by jewellers equal in hardness and brilliancy to the natural stones. Another interesting result of the experiments was that the crystals here and there, but in very small numbers, were, instead of ruby-red, sapphire-blue; and in one instance there was one red on one side and blue on the other. What influence or circumstance may have caused this variation has not been ascertained, but it proves the two gems to be closely related.

Under a magnifying lens, as seen by your correspondent, the perfect regularity of the crystals was remarkable.—*Chem. and Drugg.*

Wax Analysis.

THE method most commonly employed for the analysis of beeswax is based upon Köttstorfer's process for the analysis of fats by two successive saponifications, as follows:

Five Gm. of the wax are warmed with 20 C.c. of alcohol (of 95°) until they fuse, and a few drops of alcoholic solution of phenolphthalein having been added, the whole is shaken and titrated, while still warm, with semi-normal solution of potassium hydrate delivered from a burette divided into 0.5 C.c. From the result of this experiment the quantity of potash, in milligrammes, necessary to saturate the cerotic acid contained in 1 Gm. of the wax is calculated, and is put down as *the first number*.

Twenty C.c. more of the potash solution are then run in, and, the flask having been connected with an upright condenser, the whole is heated until entire saponification has taken place.

When this is attained, the flask is brought under a burette containing semi-normal hydrochloric acid, and titrated until the color is just discharged.

The number of cubic centimeters of hydrochloric acid so used deducted from 20 gives the cubic centimeters of the potash solution used up in the act of saponifying the myricyl palmitate. From this is calculated the amount of potash in milligrammes necessary for 1 Gm. of the wax, and the figure so obtained is called *the second number*. Finally, the first and second numbers are added together to obtain *the third number*.

Numerous researches have shown that in pure yellow beeswax the first number is 20 Mgm. (or between 19 and 21); that the second number is 75 Mgm. (or from 73 to 76); while the third number is 95 (or from 92 to 97). The relation between the first and second numbers in genuine wax is as 1 to 3.7 on the average, but may vary between 1 to 3.6 and 1 to 3.8, and the third number must not be departed from in any genuine sample.

Recently G. Buchner has analyzed a series of samples, and has given the following results tending to show that this theory breaks down when we have to deal with wax which has been bleached by chemical means. The following are Buchner's results:

	1ST NO.	2D NO.	3D NO.	RELATION.
Yellow wax	20.2	73.8	94.8	1:3.65
Naturally bleached wax	19.91 19.80	75.0 74.9	94.9 94.7	1:3.76 1:3.78
Chemically bleached wax	21.97 22.00	76.4 75.9	98.37 97.9	1:3.47 1:3.45
Chemically bleached wax	24.2 23.8 23.9	74.8 74.5 74·5	99.0 98.3 98.4	1:3.09 1:3.13 1:3.11

From these figures Buchner concludes that the standard relation in chemically bleached samples must be taken as 1 to 3.2. [In the next following table "1:" in the last column is omitted.]

To test the accuracy of these results some experiments have been made in the laboratory at Helfenberg. Two varieties of genuine yellow wax were started with, and each having been divided into two parts, the one was bleached by the charcoal process, and the other by potassium permanganate. The results obtained from these undoubtedly pure samples contradicted those of Buchner and fully confirmed the original view. They were as follows:

	DENSITY.	1ST NO.	2D NO.	3D NO.	RELATION.
Yellow wax	0.966	19.6	74.0	93.6	3.77
Wax bleached by charcoal	0.963	20.1	74.0	94.1	3.68
" " " $KMnO_4$	0.963	18.1	72.8	90.9	4.00
Yellow wax, second sample	0.964	20.1	74.8	94.9	3.72
Wax bleached by charcoal	0.963	19.6	74.0	93.6	3.77
" " " $KMnO_4$	0.964	19.1	74.0	93.1	3.87

The figures thus obtained show that the process of bleaching does not increase the specific gravity of wax, as some observers have pretended, and also that the three characteristic numbers are no larger, and are comprised within the same limits as those of ordinary yellow wax. I have lately also had occasion to analyze white wax chemically bleached by the acid process, and the following are the results I obtain:

Specific Gravity	0.966
First Number	20.2
Second Number	76.7
Third Number	96.9
Relation	1: 3.79

These numbers also contradict Buchner's hypothesis, and I am afraid that the so-called pure white wax with which he was supplied was scarcely what it should have been. It is necessary to be very cautious in accepting commercial descriptions, as is shown by the following analysis of two samples of white wax, sold as of a superior quality, but which were evidently very far from meriting the epithet.

First Number	29.7	31.46
Second Number	87.5	76.66
Third Number	117.2	99.1
Relation	1:2.9	1: 2.14

In conclusion I would urge that there is no reason for adopting any different numbers for judging the purity of white wax to those employed in the examination of yellow.—M. H. ROTTGER in *Mon. Scient.* (after *The Analyst*).

⁂

Substances Influencing the Odor of Musk.—Quinine sulphate is said to possess the peculiar property of completely destroying the odor of artificial musk, while having no such effect upon the natural product. [This is denied by competent experts.—ED. AM. DRUGG.] Sulphur and camphor produce in natural musk a very offensive odor.

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EDITORIAL.

THE NEW ERA OF INOCULATION.

WHEN England's present poet-laureate wrote in "Locksley Hall" that

> "Science moves but slowly—
> Slowly creeping on from point to point,"

he expressed a truism which is open to some very notable exceptions. While as a rule the announcements of great discoveries in science *have* been made at rare intervals, there have been epochs, on the other hand, when scientific processes seemed to come rapidly "to a head," as is sometimes said of boils and pustules, and when facts of great value have been formulated with an exactness that has added materially to the sum of the world's wisdom.

SOMETIMES, indeed, these "epochs" have been more than epochs, and have expanded into *eras* of development. It is perhaps safe to say that the present time affords an instance of the latter in the number and importance of valuable discoveries. In this article we have reference only to those facts, experiments, etc., that relate to the science of therapeutics or applied medicine, and the mind reverts naturally to the lymph treatment of tuberculosis, lupus, etc., by what may be called the Kochian method. The science of medicine will be led to make its attack on certain diseases—of which phthisis may stand as the general name and type—on entirely different lines. It is an era of warfare against the bacillus and the microbe, the smallest and at the same time the most deadly enemies of humankind.

THE attack on the chinch bug is one of the latest forms of the new crusade that is incidentally for the good of humanity. It is on a parallel line with the treatment of infected human tissue. Prof. F. H. Snow, State Entomologist of Kansas, has been experimenting for two years to perfect his plan for the spreading of a contagious disease among chinch bugs, with a view to exterminating this worst of all the pests with which Western farmers have to contend. Prof. Snow has found that there are three different causes of death among these bugs: First, the attack of "a certain bacterial germ." It is said that myriads of these minute, animated atoms may be seen with a microscope in the body of the diseased bug. The second cause is the growth of "a white fungus, the spores of which are carried by the wind, and are thus easily scattered over the entire field." The third is the presence of "still another fungus, which differs from the white fungus in color." These fungi have scientific names, and have been studied and described by various scientific men. Now, while the chinch bug attacks the wheat and corn, these moulds and bacteria are to attack the chinch bug, and, from the measure of success already achieved, it looks as if the odds are ten to one against the bug.

IN the light of recent developments it looks as if the old saying of "big fish eat little fish" would lose much of its force, and that the truth of the humorous statement in a familiar poem, that

> "The very fleas upon our backs have lesser fleas to bite them,"

receives every day a fresh and startling demonstration. It is the smallest, the most infinitesimal of our enemies that are the most dangerous; while to the devout student of nature it exalts the inscrutable knowledge and illimitable power of Him who is "Great in great things, but greatest in the least."

LYMPH vs. LEPROSY.

NEW-YORKERS were startled just before Christmas by the announcement made in one of the daily papers that a *bona fide* case of leprosy had been discovered in a Chinese laundry on Ninth Avenue near Forty-seventh Street. The stricken Chinaman was removed first to a house on Pell Street, the heart of the Chinese quarter, and was afterwards taken to an isolated ward in Bellevue Hospital, where it was proposed to try experiments with the Koch lymph on his case. The fact that his leprosy was regarded as *incurable* leaves but small grounds to hope for a favorable result. But even should this attempt fail, it may nevertheless be demonstrated in future that *incipient* leprosy, like incipient lupus, may be overcome by this new remedial agent. According to the laws among the Chinese, this poor leper would be in duty bound to commit suicide for the good of his fellow-men so soon as it becomes known that his case is beyond recovery. Unless the wonderful lymph shall destroy the bacilli of this disease, it will matter little to the ill-fated Mongolian whether he be removed by suicide, homicide, or the *pallida mors* of leprosy.

THE LESSON OF FASTING.

THE fact that an Italian man by the name of Succi has just succeeded in abstaining from all solid food, and also all liquids of a nourishing character, during a period of forty-five days in this city, is one well calculated to command at least the passing notice of the medical profession in particular, and other people in general.

The thoughtful observer naturally inquires, *cui bonum?* What is the excuse for such a voluntary act of self-starvation? Does it teach any lesson worth knowing? etc.

TO the first two of these questions there are two ready and obviously reasonable answers. First of all, as to *who is benefited*, it is plain that Signor Succi himself is reaping quite a comfortable reward in the matter of money. He is now not only a living exemplification of a great scientific fact; he is, what is possibly of more immediate value to himself, "a freak," as it is called—a paying attraction for dime museums, and in that rôle he is the natural successor not only of Dr. Tanner, but of Steve Brodie, "the Bridge Jumper," "Nurse Donnelly," who was nearly stabbed to death in a scandalous fight between two women, and will easily take rank beside the Fat Women, Living Skeletons, Albinos, and "Wild Men of Borneo." This of itself is "a consummation devoutly to be wished" by persons of Signor Succi's adventurous nature and depleted bank account. In the second place, an explanation *may* be found in the desire for notoriety, for fame of some sort, just possibly a real desire to ascertain, *in the interests of science*, the limits of physical vitality when unsupplied with regular nourishment.

Regarding the third and last of these queries, viz.: *What lesson is taught?* the matter assumes a more important and dignified aspect.

A wider scope must hereafter be given to the possibilities of preserving life in cases of enforced abstention from food. If it shall become known by all thinking minds that days and nights, and even weeks, may be passed in safety by persons deprived of food, if only water and a hopeful spirit are present, then indeed lives may be saved that would otherwise perish, and Tanner and Succi have not starved in vain. Up to a very recent period in the world's history, it has generally been believed that ordinary mortals could exist but a very few days and nights without food of a more or less solid character, and that the forty-day period of starvation was possible only to some miraculously sustained people like Christ and Elijah.

Ancient sceptics regarded the stories of forty-day fasts even by these as among the proofs that the Bible was *not* a "Word of Truth." Within a comparatively recent period, however, the forty-day record has been repeatedly surpassed, and now this Italian with a healthy stomach and a nerve of steel has raised the figure to forty-five days. Yes, there are some lessons to be learned, but we have not space to enlarge. We will only add that in Succi's starvation act we have a literal, physical illustration of the fact that

> "The individual withers, and the world is more and more."

THE NEW YEAR.

Another mile post counted, another twelvemonth of Life, of History, gone into the irrevocable past, and the American Druggist turns over a large-sized "new leaf," and tenders the *compliments of the season* to its friends both new and old.

The journal has put on a new suit of clothes, wears a newer face, and we believe a handsomer one. It is not in accordance with good taste to boast of whatever good work has been done during the year just closed. The record, whatever it be, has been made; it cannot be altered or amended; is beyond the power of any one either to injure or improve.

Hereafter the issue of the 1st of each month may be regarded as more distinctively the commercial and news edition; while that of the 15th will contain a larger proportion of more strictly pharmacological literature. Additional writers have been engaged to provide for this very considerable increase in the amount and character of matter, and every effort will be used to keep pace with the demands of the times.

It is stated by one of our exchanges that "under the auspices of the Board of Trade and Transportation, a Drug Section has been organized as a near approach to a Drug Exchange in New York City." It is also said that fifty-five prominent firms, representing drug importers, drug jobbers, chemical manufacturers and importers, manufacturing perfumers, and some other allied interests, are engaged in the enterprise. We hope to lay more definite information before our readers ere long.

In Bellevue Hospital in this city may be seen an embalmed German count, who has been chained to his post for several years, and is as plumb and erect as on the day of his death. As a contribution to science this modern mummy may *count* for more than he did as a living man. It has been suggested, also, that there is now a better chance than ever for Buffalo Bill to secure Sitting Bull's embalmed body for the Wild West Show.

Professor Koch advises consumptive Americans to stay at home, as his lymph will be sent to American hospitals as fast as it can be spared.

If the tubercle bacilli are to be destroyed by injections into human tissue of their own dead, macerated, and extracted selves, and if chinch bugs are to annihilate each other by mutual infection, there may be some ground to hope that a day of reckoning for the Croton bug, the Jersey mosquito, and the omnipresent bedbug is not far away.

The scientific world may be represented as standing on tiptoe in its anxiety to know the results of the attempts shortly to be made by the new Air Ship Company, of Chicago, to solve the long-vexed question of aërial navigation. Mr. Fred. N. Atwood, who is at the head of the scheme, has every confidence that his new aluminum ships, with their immense fans, cylinders, and reservoirs of hydrogen gas, will soon be sailing serenely through the empyrean. Hurry up the experiment.

The India-Rubber Tree.—Few plants are so well adapted for home decoration as is the india-rubber tree (*Ficus elastica*), and few are so readily grown and cared for, or will produce the same excellent effect if displayed among other plants. Especially attractive are the white and the golden variegated form, the latter being the best. The gold band about the leaves is an inch wide, and forms a beautiful contrast to the dark, shining green of the centre. A desirable species of this genus is *F. stipulata*, a handsome climber with small, round, dark-green leaves that will cling tenaciously to any rough surface. It is excellent for conservatory decoration, where it can remain permanently. The leaves of these plants, not being numerous, can be readily kept free from dust by wiping with a moist sponge. This should also be done with palms and all large-leaved plants, at least once a week.—*Exchange.*

Peanuts.—S. Luckhart, Richmond Co., Va.: There is very little danger of the cultivation of peanuts being overdone while there is such an extensive demand for peanut oil. It is stated on good authority that about six million dollars' worth of peanuts are used annually in Marseilles, France, by the manufacturers of fancy soaps. A bushel of peanuts, subjected to hydraulic pressure, yields a gallon of oil. The oil is also excellent for lubricating purposes, but we have scarcely begun to know what uses to make of this oil here, for, of the three million bushels raised in the Southern States, nearly all are used for food alone, and there is very little surplus for other purposes.

Signor Succi's Fast.

For those who care to make a comparative examination of Succi day by day under the influence of utter emptiness, the *Evening World* prepared the following tables. The first shows Succi's weight and temperature at the beginning of the fast, November 5th, and at the end of each successive day of the long abstinence from nourishment. It also shows just how much Croton and mineral waters the iron-willed king of hunger consumed each day since the start. Kaiserbrunnen was favored by Sig. Succi during the first half of his fast, but for the past three weeks he has eschewed it, squirting domestic vichy and seltzer down his lank throat direct from a siphon instead.

Add to this queer diet from 10 to 32 drops of Succi's own elixir, composed of drugs that benumb the stomach and put it to sleep, as it were, each day since the twenty-first of the fast, and a few frigid crumbs of ice each day, and you have what the Italian mystery has lived on just for six weeks and a day.

Succi's ice bill would be for about 9 pounds of that metropolitan luxury, of which he partook as follows:

December 4th, the 28th of the fast, 16 ounces; 29th, 8; 30th, 0; 31st, 12; 32d, 4; 33d, 8; 34th, 10; 35th, 36th, 37th, and 38th days, 8 ounces each; 39th, 17; 40th, 5; 41st, 10; 42d, 7 ounces and 43d, 8 ounces.

Here is the daily scientific record:

Day of Fast.	Pulse.	Weight. lbs. oz.	Ounces of Croton water.	Ouhces of mineral water.
At the beginning	98	147.04	....	....
1	79	144.0	8.5	...
2	78	139.12	8.0	....
3	73	136.12	28.0	....
4	64	135.8	4.0	....
5	60	134.0	23.0	....
6	78	132.0	12.0	6.0
7	84	131.0	12.0	8.0
8	71	130.8	10.0	19.0
9	70	129.4	5.0	10.0
10	67	128.4	7.0	24.0
11	65	128.2	6.0	32.0
12	67	127.4	4.0	26.0
13	64	126.8	8.0	22.0
14	63	125.8	4.0	23.0
15	69	125.0	8.0	23.0
16	66	124.0	8.0	11.0
17	77	126.8	4.0	23.0
18	67	122.4	4.0	28.0
19	68	121.15	9.0	21.0
20	64	121.14	8.5	20.0
21	64	120.8	8.0	23.0
22	66	119.14	5.0	20.0
23	72	118.8	6.0	19.0
24	76	117.8	4.0	26.0
25	72	117.0	5.5	28.0
26	66	116.12	6.0	25.0
27	66	116.0	5.0	16.0
28	72	114.8	6.0	4.0
29	68	113.8	3.0	20.0
30	80	112.12	2.5	12.0
31	66	112.0	4.0	21.0
32	59	111.8	4.5	17.0
33	66	111.4	9.5	12.0
34	72	110.14	2.0	34.0
35	72	110.12	9.0	10.0
36	64	110.4	8.0	25.0
37	60	109.8	6.0	24.0
38	77	108.4	15.0	15.0
39	66	107.12	38.0	15.0
40	68	107.12	15.0	2.0
41	63	107.4	14.0	20.0
42	64	107.0	16.0	17.0
43	84	106.12	8.0	22.5

It will be seen by the above table that Succi, laboring under great excitement and overheated by a grand dinner and much wine, had a pulse of 98 beats to the minute at the beginning of his fast. The highest pulse after that was at the end of the first week, 84. Again, on the thirtieth day, when Succi was almost ready to give up, his pulse beat 80 times to the minute. On the fifth and thirty-seventh days of the fast it was down to 60. The rest of the time it was normal, or nearly so.

Succi has gone to bed regularly at 12:30 A.M., and has averaged 8½ hours sleep in each 24.

He has consumed a total of 12 quarts of Croton water, and 25 quarts of mineral water, or about 37 quarts in all.

The following table shows the effects of the fast upon Succi's physique. He was a handsome young man, of a trifle under middle height, compactly and strongly built. He has lost in every point, but is still better than several dead men.

The measurements are given in centimeters, except for height, which is given in feet and inches. A centimeter is equal to a little less than ⅖ of an inch, or, to be exact, .39371 of an inch.

MEASUREMENTS IN CENTIMETERS.

	Start.	30th Day.	40th Day.	Loss.
Neck	38	38	31	7
Forearm (L)	20	18	18	2
Forearm (R)	21	18¾	18½	2½
Biceps (L)	24½	21¼	20¾	3¾
Biceps (R)	25	22	20¼	3¾
Chest, empty	85½	77	76½	9
Chest, inflated	90½	82¼	80½	10
Abdomen	86½	67	65	21½
Buttocks	94	80¾	84¼	9¼
Thigh (each)	54	44	44	10
Calf (each)	33½	30½	29½	4
	Ft. in.	Ft. in.	Ft. in.	In.
Height	5—4	5—3½	5—3½	½

The dynamometer has been used each day and Succi's strength of grip recorded. At the beginning he squeezed 47 Kgm., or about 103 pounds. He squeezed 55 kilos on two or three occasions during the fast, the last time being on the twenty-seventh day. His weakest grip was on the third day of the fast, when he was "sick clear through," and had only a 44-kilo grip.

His respiration has ranged from 13 to 23, 20 being about natural for him. His lungs have been in prime condition, and he has blown up the spirometer from 1,400 to 1,600 C. each day, better than the average man could do with dynamometer or spirometer.

The daily examinations by the physicians have found his tongue natural or only slighted coated.

Gum Benzoin.

Gum benzoin is nowadays classed under four varieties. The most valuable is the Siam gum, which is generally imported in cases, into which the drug is sometimes poured in a fluid state, while occasionally it is packed only after it has dried. When placed "on show" for the London auction sales, the cases are emptied and their contents placed on the floor, separated by small boards. The most valuable Siam gum is that which appears in bold, pale, loose, flat tears of a pale orange coat and milk-white fracture; but this variety is rare. The quality next in value is that which appears in an agglutinized mass of tears or "almonds," rather dark in color; and the third grade consists of small or dark tears, either separate or agglutinized, and of a color varying from cinnamon to dark brown. A case of Siam benzoin weighs from 1 to 2 cwt. In former years Siam benzoin was occasionally imported in solid blocks, just as the Sumatra gum is now, and the quality of the consignments has deteriorated of recent years. The Siam gum of commerce is collected in that district of Siam which borders upon Tonquin, east of Luang-Probang. It is brought to the latter place by the Khas tribe, who exchange it for manufactured goods with the Chinese dealers. The latter in their turn take it to Nong-Kai, the terminal point of the trade road to the south, and from there, at great expense of carriage, to Korat, whence, by way of Saraboori and the Nunam River, it is sent to Bangkok. In 1887 the exports from Bangkok were 37,200 kilos, and in 1888, 31,300 kilos.

MEDICAL AND CHEMICAL PATENTS, TRADE MARKS, ETC.

SPECIALLY REPORTED FROM WASHINGTON.

Liquid-evaporating apparatus (3 patents), J. A. Morrell, Lansdale, Pa.

Evaporating liquids, J. A. Morrell, Lansdale, Pa.

Insecticide, F. Jones, Morse, Kan.

Obstetrical forceps, A. B. Lyman, Baltimore, Md.

Making vegetable pepsin, V. Marcano, Caracas, Venezuela.

Making peptones, V. Marcano, Caracas, Venezuela.

Making peptonized meat, V. Marcano, Caracas, Venezuela.

Concentrating solutions and extracting solids therefrom, J. A. Morrell, Caracas, Venezuela.

Concentrating solutions, J. A. Morrell, Caracas, Venezuela.

Syringe (2 patents), W. W. Guptill, Boston, Mass.

Artificial tooth, F. T. Van Woert, Brooklyn, N. Y.

Dose-measuring bottle, H. S. Herrick, San Francisco, Cal.

Dental pluggers, J. L. Mewborn, Memphis, Tenn.

Disinfecting apparatus, F. J. Mitchell, New York, N. Y.

Red dye, C. Dreyfus, Clayton, Eng.

Mixing and tempering linseed meal, O. R. Nelson, Chicago, Ill.

Temperature regulator for liquids, F. V. Bulckens, Oregon, Ill.

Nursing-bottle holder, J. Von Huppmann-Valbella, New York, N. Y.

Forceps for dental wedges, G. J. Davison, Richmond, Va.

Surgical bandage winder, W. Gilfillan, Steinway, N. Y.

Vaginal syringe, J. R. Trott, Morrisonville, Ill.

Bleaching hair, F. G. Wiselogel, Indianapolis, Ind.

Ammonia still, F. Kaiser, Knoxville, Tenn.

Atomizer, J. Schoetti, Brooklyn, N. Y.

Capsule press, F. W. Perry, Philadelphia, Pa.

Draught tube for effervescing drinks, W. P. Clark, Medford, Mass.

Liniment, D. Meinen, Warrenton, Tex.

Device for facilitating pills, J. Yates, London, Eng.

Syringe, E. Bartsch, San Francisco, Cal.

Trade Marks.

Bromine and Lithia Waters, Bowden Lithia Springs Co., Lithia Springs, Ga. (The words "Georgia Bromine Lithia [Salt Springs] Water" and the representation of a spring house, the prominent features of the construction thereof comprising two gables in the roof and open-work below the roof.)

Medical compounds for antithermic, antirheumatic, and antiseptic uses, F. von Heyden, Nachfolger, Radebeul, near Dresden, Germany. (The word "Euphorine.")

Antiseptic, C. J. Rademaker, Louisville, Ky. (The word "Bromole.")

Medical tonics, S. Peters, Cornwall, Pa. (The word "H. L. P." in the form of a monogram.)

Liquid remedy for diseases of the eye, E. H. Burnham, Boston, Mass. (The pictorial representation of an eye combined with a protractor instrument having radii converging to and terminating in the pupil of the eye.)

Remedies for diseases of the feet, J. F. Murphy, New Orleans, La. (The word "Creole.")

Remedy for certain named diseases, W. R. Hayden, Bedford, Springs, Mass. (The letters "H. V. C.")

Tonic for debility in females, Balm of Gilead Co., New York, N. Y. (The words "Balm of Gilead" and the pictorial representation of a resurrection flower, known also as the "resurrection rose of Jerico.")

Stomach bitters, J. Thielen, Oshkosh, Wis. (The pictorial representation of an alchemist seated upon a pile of books and holding with one hand an herb, and with the other hand holding upon his knee an open book, and having at one side of him a still and at his feet in front of him a pair of scales, the pictorial representation being partially surrounded by a series of medals.)

Medicinal cure for gonorrhœa, B. D. Bell, Lexington, Ky. (The words "Stop It Sure," with the word "Sure" arranged across the face of the words "Stop It.")

Cough syrup, Murphy Bros., Jamestown, O. (The words "Persian Cough Syrup.")

Topical remedy for the cure of corns and other callosities, The Clark Johnson Medicine Co., New York, N. Y. (The words "Dr. Clark Johnson's Indian Blood Syrup," and the representation of an Indian.)

Remedy for bronchial affections, J. Easton, Brockville, Can. (A monogram of the letters "J. E.")

External application for the cure of headache, J. H. Lakin, Boston, Mass. (The words "Hedake Kolone.")

Condition powders to cure hog cholera, A. J. Van Syckle, St. Mary's, Kan. (The representation of hog bearing the words "Van Cholera Cure" and the figure of a sickle.)

Medical preparations for lung diseases, F. Leitch, Turtle Point, Pa. (The pictorial representation of a globe surrounded by a band studded with bottles in imitation of handles of a steering wheel, two sailor boys above the globe at the wheel, the whole floating within clouds.)

Liquid perfumery, French, Richards & Co., Philadelphia, Pa. (The words "Sweet Chimes.")

Liquid perfumery, French, Richards & Co., Philadelphia, Pa. (The words "White Musk.")

Pine essence for external use in disease, G. & G. Stern, London, Eng. (The word "Pumiline.")

Remedy for hay-fever, G. W. Wilms, Jersey City, N. J. (The word "Peshall's.")

Medicated tablets for female diseases, G. L. F. Hager, South Bend, Ind. (The words "Oak Balm.")

Remedy for epilepsy and other nervous diseases, S. A. Richmond, Tuscola, Ill. (The representation of a fountain and landscape, the words "Samaritan Nervine," and the motto "In God we Trust.")

Remedy for small-pox, J. L. Suasnavar, New York, N. Y. (A monogram of the letters "J. L. S." and the signature of Jose Leandro Susanavar written across it.)

Lime-water preparations, T. Metcalf & Co., Boston, Mass. (The word "Anticidine.")

Disinfectants, Schulke & Mayr, Hamburg, Germany. (The word "Lysol.")

Remedy for catarrh, J. Stackhouse, Philadelphia, Pa. (The word "Oswi.")

Labels.

"Lameraux' Antiseptic," J. Lameraux, Montgomery, Ala.

"Dr. Stephens' Buckeye Cough Cure," A. F. Stephens, St. Joseph, Mo.

"Curtis' Spruce Balsam" (for medicine), G. S. Curtis, Peabody, Mass.

"Crane's Infallible Rheumatic Remedy," O. Crane, Brooklyn, N. Y.

"Dr. Aberle's Coffee Tonic," J. Aberle, Cleveland, O.

"Positivus Catarrh Remedy," C. S. Ely, Milton, Pa.

"Dr. Pendlebury's Wonderful Pectoral Cough Cure," E. H. Merritt, New York, N. Y.

"Bush's Liquid Beef," Bush & Talbot, Boston, Mass.

"Calisaya Tonic Bitters," A. C. Peckham's Sons, St. Louis, Mo.

"White Musk" (for perfumery), French, Richards & Co., Philadelphia, Pa.

"Peshall's Remedy for Hay-Fever," G. W. Wilms, Jersey City, N. J.

"Noyes' Granular Effervescent Magnesia Sulphate," The P. J. Noyes Manufacturing Co., Lancaster, N. H., and Boston, Mass.

"Cream of Almonds" (for the toilet), Van Dyke Bros., Philadelphia, Pa.

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SIR MORELL MACKENZIE has experimented with the Koch lymph, with marked success, on several cases of lupus and phthisis in London.

THE EMPRESS has placed $250,000, together with the hospital grounds at Lichterfeldt, at the disposal of Minister Gossler to be used in the interest of Prof. Koch.

THE KOCH lymph is having several very fair tests in this country, in New York, Philadelphia, New Haven, Baltimore and elsewhere, and in the majority of cases a marked improvement has been noted in the condition of the inoculated patients.

PROF. BILLROTH, becoming alarmed over some cases that resulted fatally where lupus was treated with Dr. Koch's lymph, suspended his treatment with several of his patients who were suffering from advanced stages of this disease.

The Output of Platinum.

In view of the recent enormous advance in the price of platinum, the following figures, showing the output of the crude ore in Russia, are of interest: In 1881, 2,986 kilos were produced; in 1882, 4,081 kilos; in 1883, 3,537 kilos; in 1884, 2,237 kilos; in 1885, 2.591 kilos; and in 1886, 4,317 kilos, or an average of hardly 660 cwt. a year. All this platinum is found in two districts of the government of Perm. The mines of Goroblagodsk yield about two thirds, those of Nigi-Taguitsk one-third of the supply. The syndicate which is said to be cornering the platinum supply have, no doubt, in view the enormously growing demand for platinum for electric industries; but the cutthroat policy they are reported to pursue is likely to have the effect of stimulating the working of platinum deposits in other parts of the world, as well as of putting electricians on their mettle in finding a substitute for platinum.

In the Ural mines, until some years ago, platinum was obtained as a kind of by-product in the working of the auriferous deposits, the existence of which led to the opening of these mines; but during the last few years the gold ore has become much scarcer, and platinum has superseded gold as the principal product of the mines. Besides the operations of the syndicate, the recent advance in the metal is attributed to the increasing scarcity of the ore and to the fact that labor, always an uncertain factor in the Ural mines, has become excessively scarce since the commencement of the Trans-Siberian Railway.

News comes opportunely from Mexico of the discovery of platinum in the ores extracted from certain mines in Sinaloa, a State famous for its mineral wealth.—*Chem. and Drugg.*

* * *

The British Pharmaceutical Conference will meet in 1891 in Cardiff, Wales, a city of about 130,000 inhabitants, and the largest in the province. The officers elected are: President—Mr. Wm. Martindale, F.C.S.; Vice-Presidents—Messrs. Carteighe, Kinninmont, Dr. Thresh, and Mr. Munday; Treasurer—Mr. Davies; Hon. Gen. Sec's—Messrs. Naylor and Ransom; Other Members of the Executive Committee—Prof. Green, Messrs. Gerrard, Kirkby, Dott, Martin, Holmes, Branson, Ward, and Alderman Yoruth; Hon. Local Sec'y—Mr. Alfred Coleman; Auditors—Mr. David Anthony and Mr. Yewdall.

Pharmacopœial Uniformity.—The pharmacists assembled in the Pharmacological Section of the late International Medical Congress thought it wise to carry forward the consideration of an International Pharmacopœia to the Scientists' Congress, and the subject was therefore again brought up at the recent gathering of that body at Bremen. Every one was aware, of course, of the work done on these lines by Von Waldheim for the International Pharmaceutical Congress some years ago, but it was felt that the scheme ought to be designed on new principles, as a considerable time has since elapsed. Dr. Hirsch, author of the "Universal Pharmacopœia," and Dr. Thoms have been appointed to carry out the preliminary work and bring the result before the Congress next year. It is only designed to bring about uniformity among the most potent preparations; a complete International Pharmacopœia is not thought of.—After *Chem. and Drugg.*

Potassium Tellurate in Phthisis.—Potassium tellurate has been experimented with by Dr. Neusser in the treatment of phthisis, in the expectation that it might act as a bactericide (*Lancet*, August 16th, page 365). He reports that he administered it in about fifty cases, and that in by far the greater number one-third of a grain, given daily in a pill, was sufficient to arrest the sweats or moderate them very perceptibly. In a few instances it was necessary to double the dose, but this quantity was usually sufficient to produce the result desired. Toxic symptoms were never observed until at least a grain had been given daily for a considerable time, indigestion being then set up.

The remedy has, however, the drawback of imparting to the breath the disagreeable garlic odor characteristic of tellurium compounds.—After *Pharm. Journ.*

FORMULAS.

We copy some simple and useful formulas from the latest issue of the *Chemist and Druggist:*

CHILBLAIN REMEDIES.

Liniment.

Camphor	2	drachms
Cantharides	2	"
Table Mustard	4	"
Oil of Cajuput	1	"
Oil of Rosemary	3	"
Alkanet	2	"
Oil of Turpentine	10	ounces

Macerate for ten days with frequent agitation.

This liniment is to be applied to the skin by friction night and morning. It has the advantage over many liniments in being comparatively harmless, and it is at the same time efficacious.

EARACHE DROPS.

Camphor-Chloral	5	minims
Glycerin	33	"
Almond Oil	20	"

Mix. Three drops of this mixture on absorbent cotton to be placed in the ear twice a day.

GLYCERIN JELLY.

A favorite preparation for winter use, being a soothing and healing application for the chapped skin. There are numerous formulas, but the following are among the best:

Plain.

Thin French Gelatin	½	ounces
Water	5	"
Glycerin of Borax	10	"
Triple Rose Water	6	"

Soak the gelatin with the water all night in a gallipot, and next morning place the pot in a saucepan with water and heat until dissolved; then add the glycerin and the rose water. Mix. May be colored with cochineal or a little saffron.

Carbolated.

Isinglass	1	ounce
Glycerin	16	"
Water	3	"
Carbolic Acid	1	drachm

Prepare as above.

Solid.

French Gelatin	120	grains
Glycerin	1½	ounces
Water	½	"
Otto of Rose	1	drop

Make in the usual way, adding the otto when the jelly is lukewarm, and pour into moulds, such as cosmetic cases. To be used in the same way as camphor ball, the skin being first moistened, or may be used before drying the hands after washing.

ESSENCE OF RENNET.

Take one calf's stomach, cut it into twenty pieces, and rub with 6 ounces of salt. Let stand over night, then digest in 36 ounces of water for at least a week—but it *may* stand for a month or two—then strain, and to the strained liquor add the following:

Oil of Pimento	12	drops
Oil of Bitter Almonds	12	"
Oil of Nutmeg	12	"
Oil of Cloves	12	"
Oil of Lemon	12	"
Rectified Spirit	4	ounces

ilter through lampblack.

This essence has kept good for three years. A tablespoonful of it is sufficient for a quart of junket.

FURNITURE OIL.

Linseed Oil	15 ounces
Turpentine	10 "
Vinegar	8 "
Methylated Spirit	8 "
Butter of Antimony	1 "
Camphor	1 drachm
Sal Ammoniac	8 "

Dissolve the camphor in the spirit, and the sal ammoniac in the vinegar. Mix the ingredients in the order of the recipe.

CHLOROFORM OINTMENT.

In a paper read at the recent meeting of German Physicists and Physicians, Mr. Kittl suggested that, as such applications owe their efficacy to the slow evaporation of the chloroform, thicker media than the oil generally used should be employed, so as to prolong the action of the chloroform.

For three or four years he has made ointments according to the subjoined formula, and they have been used with good results by medical men.

Chloroform	1 part (by weight).
Wax	1 " " ".
Lard	2½ to 3 parts " "

This is generally used for rheumatic affections. A harder salve is made with the same proportions of wax and chloroform, but with 1¼, 1½, and 2 parts of lard. The way to make the ointment is to melt the lard and wax in a stoppered bottle, and when cold stir in the chloroform with a spatula. The ointment is applied to the affected part on lint.

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The Otis Steel Company, of Cleveland, which has the largest plate mill in the world, a few days ago rolled a 20-inch ingot of 8,500 pounds down to ¼-inch plate with one heat. Some of the members of the Iron and Steel Institute, who visited these works during their tour of inspection in this country, were surprised at seeing plates rolled direct from the ingots without being hammered or otherwise prepared.

Filling for Dry Batteries.—A new mixture for filling dry cells, prepared by Mr. A. V. Meserole, of New York City, consists of the following solid ingredients in the form of powder: Charcoal, 3 parts; mineral carbon, or graphite, 1 part; peroxide of manganese, 3 parts; lime hydrate, 1 part; white arsenic (oxide), 1 part; and a mixture of glucose and dextrin or starch, 1 part—all by weight. These are intimately mixed dry, and then worked into a paste of proper consistence with a fluid solution composed of equal parts of a saturated solution of chloride of ammonium and chloride of sodium in water, to which are added 1/16 volume of a solution of bichloride of mercury and an equal volume of hydrochloric acid. The fluid is added gradually and the mass well worked up.—*Scient. Amer.*

NEWS ITEMS, CURRENT EVENTS.

PHARMACEUTICAL ASSOCIATIONS.—DATES OF MEETING, 1891.

	Place and Time of Meeting.	Secretary.	Local Secretary.	Pharmacy Law.
American	New Orleans, La., April 27th	John M. Maisch, Philadelphia.	A. K. Finlay, New Orleans	
National Wholesale.	Louisville, Ky	A. B. Merriam, Minneapolis, Minn		
States.				
Alabama	Huntsville, May 12th	P. C. Candidus, Mobile	J. L. Risin, Huntsville	Yes.
Arkansas	*Hot Springs, May	J. W. Biedelman, Little Rock		No.
California	*San Francisco	D. D. Hunt, San Francisco		No.
Colorado	Colorado Springs, September 8th	F. A. Lyneman, Denver	G. B. Storer, Colorado Springs.	Yes.
Connecticut	New Haven, February 3d	F. Wilcox, Danbury	J. S. Coburn, New Haven	Yes.
Dakota, North	*	L. C. Christianson, Fargo		Yes.
Dakota, South	Madison, August 18th	J. A. Kieth, Lake Preston	M. A. Bartlett, Madison	Yes.
Delaware	Wilmington, May 7th	J. M. Harvey, Wilmington		Yes.
District of Columbia.	No association			Yes.
Florida	Jacksonville, May 20th	S. P. Watson, Jacksonville		Yes.
Georgia	Augusta, May 14th	H. R. Slack, Jr., La Grange		Yes.
Illinois	Kankakee, August 18th	C. S. Hallberg, Chicago	F. Fries, Kankakee	Yes.
Indiana	Indianapolis, May 12th	J. R. Perry, Indianapolis		No.
Iowa	*	Mrs. R. Upson, Marshalltown		Yes.
Kansas	Ottawa, May 21st	J. T. Moore, Lawrence		Yes.
Kentucky	*	J. S. Smith, Lexington		Yes.
Louisiana	New Orleans, April 8th	Mrs. E. Rudolph, New Orleans.		Yes.
Maine	*	H. T. Cummings, Portland		Yes.
Maryland.	*Baltimore	J. W. Gieger, Baltimore	Pharmacy law in Balti	more only.
Massachusetts	Boston, June	J. W. Colcord, Boston		Yes.
Michigan	Ann Arbor, October.	C. A. Bugbee, Sheboygan		Yes.
Minnesota	*	W. K. Hicks, Minneapolis.		Yes.
Missouri	Excelsior Springs, June 9th	G. H. C. Klie, St. Louis	M. Cravens	Yes.
Nebraska	Beatrice, May 26th	Mrs. J. M. Crissey, Omaha	J. D. Rainey, Beatrice	Yes.
New Hampshire	Exeter, September 8th	S. H. Bell, Derry		Yes.
New Jersey	Trenton, May 20th	C. F. Dare, Bridgeton		Yes.
New York	Bluff Point, near Plattsburg, June 23d	Clay W. Holmes, Elmira	J. H. Smith, Plattsburg	Yes.
North Carolina	Morehead City, July	F. W. Hancock, New Berne	R. J. Gooding, New Berne	Yes.
Ohio	Dayton, June 9th	L. C. Hopp, Cleveland		Yes.
Oregon	Portland, June 9th	H. D. Diedrich, Portland		No.
Pennsylvania	Bedford Springs, June 23d	J. A. Miller, Harrisburg		Yes.
Rhode Island	Providence, January	W. E. Cates, Providence		Yes.
South Carolina	*	P. Wineman, Charleston		Yes.
Tennessee	Knoxville, May 20th	J. L. Thompson, Nashville		No.
Texas	Houston, May 12th	L. M. Connor, Dallas	J. Burheim, Houston	Yes.
Virginia	Roanoke, September 8th	C. B. Fleet, Lynchburg		Yes.
Washington	Ellensburg, May 11th	W. St. John, Tacoma		Yes.
Wisconsin	Milwaukee, August 11th	E. B. Heimstreet, Janesville.	J. Kienth, Milwaukee	No.

* Date not fixed.

—*Pharmaceutical Record.*

CHICAGO NOTES.

Fred. A. Rometsch is at present in charge of the prescription department at Fish, Joseph & Co.'s.

Henry Schroeder sold his store at Division street and Milwaukee Avenue to F. J. Lichtenberger & Co.

The examinations of the Board of Pharmacy were conducted at the Grand Pacific Hotel of this city on November 11th, 12th, and 13th; 21 applicants were awarded the certificate of registered pharmacist and 29 the certificate of assistant pharmacist.

Chas. W. Day, President of the Illinois Board of Pharmacy, was married recently to Miss Elizabeth Fowler.

V. P. McDowell opened a new store at the corner of Oak and State streets.

Dr. J. A. Lydston, a graduate of the Chicago College of Pharmacy, is now demonstrator of chemistry at the College of Physicians and Surgeons.

A. G. Luning disposed of his store at Lincoln and Diversey avenues to E. Weber.

A. C. Brendecke purchased the store of Fred. Eberlein at the corner of Madison and Clinton streets.

W. H. Mueller has established a pharmacy at the corner of Halsted street and Diversey avenue.

The suit against A. S. Cowan, 100 North State street, by a woman who some time ago fell through a register hole in his store, was recently brought to trial. The case was continued owing to the disagreement of the jury.

Carl Lindemann purchased the store of Dr. S. S. Hurstat, 51st street and Wentworth avenue.

The report of the proceedings of the Illinois Pharmaceutical Association for the years 1889 and 1890 are now ready for distribution and may be had by addressing Secretary Hallberg.

W. H. Stolte was quite ill with typhoid fever. At last accounts he was convalescing.

F. F. Seville was married recently to Miss Addie Beggs.

The constitution and by-laws of the Diastase Club have been thoroughly revised and published in neat pamphlet form for the use of members. In this pamphlet we observe such words as "Molecule," "Atom," "Element," "Pharmic Supreme," "Medic Supreme," etc. The meetings are occasions for gregarious pharmacists to worship at the shrine of Gambrinus, the rules of the club not permitting this to be done to excess, however. These meetings are held bi-weekly.

Judson S. Jacobus has opened a new pharmacy at 75 43d street.

F. W. Buescher & Co. now occupy the store formerly owned by Frank G. Somers at 315 Chicago avenue.

Albert J. Kettering has opened a new store at 2901 Wallace street.

E. J. Healy & Co. now occupy the store at 201 South Halsted street.

I. J. Heckman has established a new pharmacy at 6616 State street.

Cornelius Vanderpoel has removed his pharmacy to 1157 Western avenue.

M. L. Brauns has opened a new pharmacy at 1119 California avenue.

Geo. R. Basset and R. V. Bachelle have also established new pharmacies, the former at 1324 Ogden avenue, the latter at Marshfield avenue and Taylor street.

John L. Rudolphy, who died during the month of October, was well known in pharmaceutical circles throughout this country. Born in the province of Hanover, Germany, in 1819, he became an apothecary's apprentice and graduated at the University of Goettingen in 1837. He removed to this country in 1850, and was started in business in New York City at Sixth avenue and Fourth street by a cousin. He branched from the retail drug business into the rectification of essential oils, and was quite prosperous until the year 1856, when an explosion of oil occurred which caused a ruin of the entire stock and building and nearly blinded him. As soon as his eyes were sufficiently recovered, he was re-established in business on the same corner by a friend. In addition to the retail business conducted, he did some wholesaling and importing with the co-partnership of Julius Zoeller. In 1875 financial disasters again overtook him and swept away all his possessions. Coming to Chicago soon after, he was established in the drug business at Halsted and Taylor streets, where he remained until the time of his demise. He leaves six sons and two daughters, all of the former being connected with the drug trade in some capacity. He was the compiler of the "Pharmaceutical Directory" and the "Pharmaceutical and Chemical Directory."

Special lectures on physics, physiology, and bacteriology are being delivered at the Chicago College of Pharmacy. Other special lectures will be delivered after January 1st on various topics, including "Fragmentary Notes on Pharmacy" by Prof. Albert E. Ebert, "Urinalysis" by A. E. Hiss, "The Polariscope and Its Application," "The Pharmaceutical Chemistry of the Stock Yards," etc.

Emil Thiele, the Archer avenue druggist, was elected State senator, and Victor Bardonski, of 615 Noble street, county commissioner. Both gentlemen are graduates of the Chicago College of Pharmacy.

H. S. Maynard sold his store on West Randolph street to J. R. Shinn, as he intends to devote his entire time to manufacturing pharmacy.

Matthew Warner, of Lemont, entered suit against Nicholas Bartz, another pharmacist of the same town, and a former clerk

DETROIT NOTES.

Messrs. Urisinger & Fluegel have a very tasteful exhibit of toilet articles for the holiday trade in their windows, consisting of manicure sets, shaving mugs, toilet cases, perfumery, etc., appropriately arranged against a background of olive green. The arrangement reflects great credit upon the designer, and will undoubtedly be the means of drawing numerous customers to this already popular pharmacy.

Mr. Henry J. Milburn, druggist, has a fine stock of seasonable and salable articles. Mr. Milburn is the originator of the "Wild Flowers of India" perfumes, with which he has made a decided hit.

The ever genial Fred. D. Stevens is on deck as usual with an elaborate, costly, and well-selected line of holiday goods, arranged in such lavish profusion as to dazzle the eyes of many an unsuspecting pedestrian who, stopping just for a moment to view the gorgeous treat, is finally lured into the store, unable to withstand this tempting bait so skilfully laid by the crafty Fred. In this manner do the bold but honest pharmacists of this city wring many a welcome dollar from the unwilling hand of sturdy toil.

The many friends of Dr. F. Hogguer, who for a number of years had a drug store on Monroe ave., will be glad to learn that, becoming disgusted with a life of innocuous desuetude, he has decided to again embark in business, this time on Gratiot ave. Dr. Hogguer has been out of active business for about three years, during which time he has travelled extensively throughout Europe and his native land, France. He re-enters the field with all his old-time vigor and an experience ripened by his valuable observations and study of the methods and manners of Continental pharmacists, and promises to start in right on top, and stay there, too. If the wishes of his friends count for anything, the doctor will score the biggest kind of a success.

Mr. A. A. Brown, who recently moved to Detroit from Marquette, occupying Mueller's old stand, reports business as booming. He is the proprietor of the well-known "Alpha Headache Wafers," from the sale of which he has already amassed a considerable fortune; and if the demand for them continues to increase at the present rate, Mr. Brown at no very distant date will probably be numbered among Detroit's millionaires.

Mr. F. W. R. Perry, who is one of the most prominent members of the Detroit Pharmaceutical Association, and to whose push and enterprise the present flourishing condition of the association is largely due, has laid in a stock of pleasing novelties and reports holiday trade as good.

Mr. Al. Burbank, the prominent and flourishing druggist of Parma, was in the city for a few days making his winter purchases. He reports trade as brisk, and says next season will witness the greatest revival in business the drug trade has seen for many a year.

Mr. Geo. D. Jones has purchased the stock of Begraw Bros'. west side pharmacy, and expresses himself as well pleased with his new departure.

"Footine" is the suggestive title of a new remedy which has lately made its appearance in this vicinity, and which for unique and "artistic" advertising certainly jerks the Johnnycake.

The advertisement generally consists of this dainty motto, so terse and yet so fraught with meaning, "If your feet stink, use Footine." Evidently the proprietors are making a determined bid for that exclusive class of trade known as the *bon-ton*, and the indications are they will get there with both feet, even if they do stink.

NEW ENGLAND NOTES.

The State Board of Pharmacy of Massachusetts, in presenting its annual report to the governor, asks for additional legislation, which, it claims, is needed to enable it to enforce its provisions. That is, it asks an amendment to existing laws requiring, as in most of the other States, an annual re-registry by holders of certificates, and the payment of a small fee, say 50 cents or $1. It does not intend, as many conjecture, an annual re-examiaation. That the Board is cramped for funds to more carefully carry out the provisions of the law is without doubt true, the only revenue being derived from the fees received from applicants for certificates. The law regarding registered clerks, and even proprietors, is broken so openly as to be common talk.

The Board is not altogether to blame for claiming that its functions are more educational than correctional, and, still further, in the fact that it gets no assistance from local druggists who are conversant with the facts, and can easily procure testimony which the Board cannot, while no funds are at its disposal for legal employment. The Connecticut Board, even *with* funds at its disposal, finds it difficult to punish offenders. It secured evidence against one man who owned several stores, and who, having but one registered clerk, openly defied it, claiming that he was only required to keep one registered clerk. The district attorney's attention was called to it, and he was requested to prosecute; but so far, after nearly a year, nothing has been done, although each store has now a registered clerk. The district attorney is said to be an intimate friend of the druggist and a frequent recipient of his hospitality.

It is reported that two of the best examinations passed in the Massachusetts Board were by parties who had *never done a day's work in a drug store.* If some practical method of actual store work could supplant or supplement the present method of questions, it would seem to be fairer. The Rhode Island Board has had an adverse decision, the court ruling that even if the Board knew that a drug store was to be opened as a dram shop, and the man passed the examination, it had no right to withhold the certificate of registration.

Much interest is apparently being manifested in the results of the action taken by the Massachusetts State Pharmaceutical Association at the special meeting held in Boston December 2d. There were a large number present, seven new members being admitted. A committee of fifteen was appointed to canvass the retail trade, to see how many would take stock in the new co-operative scheme. If enough subscribers can be obtained to warrant it, a separate corporation is to be formed, with shares at $25 each, for co-operative manufacturing of proprietary medicines, and no one can hold more than four shares.

The plan is about as follows: A committee of the leading pharmacists of the State will be appointed to receive and examine samples and formulas of such articles, to the number of about fifty different lines, including sarsaparillas, cough syrups, pills, etc., and what appears to be the best in each line will be selected, and the party submitting will be allowed to manufacture at a low price for the corporation. The members of the corporation will be charged a small advance, which will be used for expenses and in advertising. All dealings will be for cash. None but members will be able to obtain the goods, and shareholders will have to pledge themselves not to break prices. They will be afforded, on the average, about 100 per cent profit.

Every one present at the meeting is said to have agreed to take a share of the stock. A plan of advertising, as yet not fully developed, will be employed to aid sales. Labels, wrappers, etc., will be uniform. Properly managed it would seem to be feasible and cannot help making its power felt.

The action of the Albany druggists is being discussed all over New England, and so far as I can learn it is commended.

It would seem to be time that leading proprietors of patent medicines took some collective action in their own behalf to put a stop to the ruinous slaughter of their preparations, or see them entirely forced out of the hands of the retail druggists.

The Massachusetts Institute of Technology is now entering on its second quarter-century of existence. Its early history was excellently summarized in an address delivered last June at its twenty-fifth anniversary. It was founded by Prof. William B. Rogers; a native of Virginia, formerly director of the Virginia Geological Survey, and Professor of Chemistry and Physics in the University of Virginia. After a hard struggle it began to be more prosperous, and in 1879 entered on its new career, with about 200 students. It now has about 1,000 students. Its present president, Gen. Francis A. Walker, was the superintendent of the census of 1880.

The Trustees and Faculty of the Massachusetts College of Pharmacy are to give Mr. Henry Canning, for many years President of the College, a complimentary dinner on January 8th, 1891, as a testimonial of their appreciation of his valuable services to the College.

Mr. Max Cramer has been elected a Trustee of the College. Mr. Cramer is a well-known German pharmacist, and has been in business in Boston for many years.

S. S. Bradford, Ph.G., of Charlestown, Mass., has presented to the College a very old jar, such as were commonly used by pharmacists over a hundred years ago. It was imported from Holland over a hundred years ago.

The class of 1890 have organized with the following officers: President, I. A. Harris; Vice-Presidents, Fred'k P. Brooks, Frank T. Crane; Secretary, Chas. A. Ward; Treasurer, Frank T. Crane.

Mr. W. L. Sadler, of Springfield, on account of ill health has decided to close up his Worcester store that he purchased of Bradt & Flint a few months since.

Dr. Cannon has sold the Briggs store that he purchased a month ago in Meriden to Merrill Bros.

Mr. W. G. Hunter, who conducts stores in New Britain and New Haven, will soon open a new store in Fairhaven.

Davis & Young are just opening one of the handsomest stores in the city of Lynn.

Two new stores have just been opened in Marlboro.

Quite a number of the fraternity were successful at the recent municipal elections in Massachusetts. M. J. Griffin secured the mayorship in Holyoke, while a number were elected as aldermen and councilmen.

Notwithstanding the judgment against the firm of Weeks & Potter, the well-known jobbers of Boston, to the tune of $60,000 by the estate of the late Leopold Babo, they still do business at the old stand. The plaintiffs state that the defendants had fraudulently secured and sold preparations which Mr. Babo claimed as his. It has been in the courts a long time, but is finally settled.

C. J. Dwyer has opened a new drug store in Marlboro, Mass.

Frank H. Howe has opened a new drug store at corner Franklin and Braintree sts., Allston Station, Boston, Mass. C. H. Bangs furnished the fittings, which are of mahogany.

Mr. Bangs has also been engaged in fitting up an elegant store on Cottage street, Boston Highlands, Mass., for Mr. F. M. Loring, formerly of Malden.

Mr. Kilbride, formerly manager of the People's Drug Store of Waterbury, Conn., opens a store of his own on East Main street, in that city, on January 1st.

The Boston Druggists' Association had a pleasant social time at Young's Hotel at their last meeting, November 25th. They will hold another session on the 8th of January. Young's is a popular place for meetings of this kind.

Benjamin L. Hughes, of Beacon street, Brookline, Mass., who formerly did business in Florida, is having an elegant new store fitted up by Bangs.

Prof. S. A. D. Sheppard, of Boston, has found another helpmate for the duties and participant in the pleasures of life, for which he is receiving the congratulations of his many friends.

The J. C. Ayer Co., of Lowell, has just sent out to the wholesale druggists of the country a business manifesto relative to the preservation of prices on the goods manufactured by the company. Ayer & Co. seem determined to hold faith with the wholesale druggists, even if it costs them (the manufacturers) the good-will and patronage of the "sutler shops" throughout the country. If all other concerns that depend mainly on the drug trade will follow this example, the difficulties involved in the question of cutting rates will soon disappear.

NEW JERSEY NOTES.

Henry Williams, the druggist, indicted by the Monmouth County (N. J.) Grand Jury for selling liquor without a license at Asbury Park, was convicted December 16th, and has been sentenced. His is the first case in which a druggist accused of defying the prohibitory laws of Asbury Park has been convicted. He made no defence.

◆

From October, 1889, to October, 1890, 411 tons of ivory, at $5,000 per ton, had been sold in London. Half of this amount came from Asia and half from Africa.

"Prof. Rowland's Thermometer," at the Johns Hopkins University, Baltimore, is the most perfect instrument of the kind in the country, and is valued at $1 ,000. The graduations on the glass can only be read by a microscope, they being too fine for the naked eye.

Wooden spoon making is an extensive industry in Russia, 30,000,000 being the annual product. It will be remembered that it was one of these household utensils with which Mrs. Squeers, of Dotheboys Hall, used to tap reluctant pupils on the head when they hesitated to swallow their brimstone and molasses.

Maine seems to be headquarters for centenarians. They number twenty at present, some of whom have passed the century by several years. The women belonging to this ancient squad outnumber the men nearly two to one, which somehow seems to upset the "weaker sex' notion, physically at least.

ITEMS FOR THE ORDER BOOK.

The Eureka speaks for itself. It is the name of the handsome new soda fountain shown in the ad. of A. D. Puffer & Sons M'f'g Co. on page 7. Write to them for particulars.

A new Suppository Machine will be found illustrated on page 8, in the "ad." of Whitall, Tatum & Co., and also a Hard-rubber Tablet Mould for making 50 one-grain triturate tablets. In fact, you will always find something interesting on that page.

Do you keep Julius Fehr's "Compound Talcum Baby Powder"? Of course you do, but how is your supply? You want to look after that. The chilling, chapping winds of winter will create extra demands for protective powders, and there is none better than this. See the "ad." on page 20.

When your customers call for Pepsin, you will naturally look for something that has an established reputation. Among the many preparations of this valuable article none take higher rank than those of Fairchild Bros. & Foster.

When a thing is done it should be *well* done, and that is the idea upon which the firm of Robert M. Green Co., of Philadelphia, proceed in the construction of their world-renowned soda fountains. "The Oregon," shown on page 19, is a late specimen of the kind of soda apparatus turned out by them.

Nearly every lady in the land, yes, in *all* civilized lands, knows about "Saunders' Face Powder or Bloom of Ninon." We call attention of druggists again to the card on pagė 24.

Some handsome illustrations of the immense laboratories, office, store, warehouses, etc., of Burroughs, Wellcome & Co, of Snow Hill, England, are contained in the late number of the London *Chemist and Druggist*. If you wish to open any correspondence with the English and foreign trade, Messrs. B. & W. are the proper parties to consult. Their address is given on our front cover page.

When you want Alcohol, Cologne Spirit, Turpentine, etc., remember that James A. Webb & Son, of 165 Pearl street, "hold the fort" in these lines. Their card may be found on front cover and also on page 9.

It is the early bird, they say, that gets wormy, and Messrs. Beach & Clarridge, of Boston, manufacturers of Fruit Juices and Soda Fountain Drinks, are evidently after the worms. This enterprising house, in addition to their card on front cover, have a two-page announcement in this issue, one showing the inside of their immense laboratories and another page giving a list of beverages prepared by them for the trade of 1891. The business of this house has grown phenomenally within the last three years. *Pluck* and *first-class goods* have done it. Write them.

Write also to James W. Tufts, of Boston, 33 Bowker street, and ask him for his "rock (candy) bottom" price on the "Troubadour" fountain, which looms up in the ad. on page 25. Anyhow you want the new catalogue, which will be sent free by mail.

H. Planten & Sons, manufacturers of filled Capsules, are kept busy filling orders for many of their newest lines of goods. Of course, the reputation of the house is world-wide, and their business keeps pace with the ever-increasing demands of the trade. Prices of the principal lines of their goods will be found in our price-list this month.

Then, too, there are the celebrated Pills, made for many years by Auguste Blaud, of Beaucaise, France, of which you may need a new supply. The card is on page 23.

It will be well to note the prices given by Dr. Henry A. Martin & Son, of Boston, on their Vaccine Virus Ivory Points. The virus made by this company has the highest possible reputation, and this winter is apt to create a fresh demand for the goods.

An interesting bit of talk is indulged in by Mr. C. H. Bangs this month on page 11 relative to fitting up drug stores. If anybody knows what he is talking about it is Mr. B. when he strikes this subject. Read it over. It will be worth your while.

If you have looked and looked at soda fountains and compared prices, etc., at other establishments, and not been exactly suited, then by all means send to Chas. Lippincott & Co., Philadelphia, for their catalogue and particulars on the kind of fountain you want. You will not need to look any further. Come to think of it, you may save time and annoyance by writing them *first*. See page 28.

It often happens that you want a line of *Seamless Tin Boxes* and don't know just where to get them. In that case, if you have no present need for these goods, we would suggest that you turn to page 12 of this journal and cut out the small ad. of Wm. A. Gill & Co. and paste it on your desk, right before your eyes. They make the best.

Some Rubber Specialties are shown this month in the new whole-page advertisement of the Tyer Rubber Co. which will be of live interest to druggists. This company has been extending its lines of manufacture, and consequently its trade territory, within the past three or four years, until now no rubber house is better known by a large proportion of the American drug trade. Look at the page carefully and see if you don't need some of these articles—page 50.

No Expense to You. Never be without advertising matter for Humphreys' Preparations. A postal card sent to the address of the company (cor. William and John Sts., New York City) will bring you a handsome sign or supply of Dr. Humphreys' Manuals, with your name and address printed on each; all charges prepaid; *no expense to you.*

Do you sell seeds? If so, do you consider the quality when buying? Poor seeds are the cause of more poor crops than all the atmospheric and climatic changes that occur. Yet you continue right on buying an inferior brand because it is cheap. Is this economy? It can easily be remedied by writing to Messrs. W. H. Morehouse & Co., Toledo, Ohio, wholesale dealers in *Grain, Clover* and *Timothy* Seed. Their Anchor Brand of choice grade clover, which has been recleaned and bulked, is the finest in the market. Also their orchard and lawn grass Hungarian, Red Top, and White Clover, are equally as good. Any one wishing to purchase or sell seeds in bulk should correspond at once with above-named firm.

Just as a reminder we would mention the fact that the following named articles, put up by Wm. R. Warner & Co., of Philadelphia, are essential commodities to every well-equipped drug store: "Bromo Soda," "Elixir Salicylic Acid Comp.," "Pil Sumbul Comp.," "Bromo Potash," and the new granular effervescent, "Antalgic Saline."

The great success of the Upjohn Friable Pills and other pharmaceuticals has been so great that the manufacturers have been compelled, by the demands of the Eastern market, to open a New York office at 93 William street. This New York branch will be under the management of Mr. F. L. Upjohn.

St. Nick Wants Lymph.

Receding phantom of our younger days,
Gray vision of a moonlit vigil, speak!
Why are thy steps missed from their wonted ways?
Why do thy ruddy features pine and peak?
Why do our blasé children laugh to scorn
Thy sleigh, heaped high with bonbon, drum, and horn?
Speak, withered shade of Santa Claus, thy mien
Consumptive shows thou ought'st to have Kochine!

"I'm *ausgespielt!* Alas, no more for me
The reindeer patter o'er the snowy lea—
Did they come now, no doubt for venison
They'd be killed off by some boy with a gun!
No more the trustful heart of childhood beats
In sweet anticipation of my sweets!

"No more the rosy ear is trained to catch
My steeds' light hoofbeats on the echoing thatch!
I am a phantom of the elder day
When childish children learned to romp and play;
With all th' illusions of the past, I go
Back to the vague and silent land of snow;
I flee from Kodaks! telephones destroy
My favorite type of trusting girl and boy;
The L roads scare my deer; to tell the truth,
I'm several points behind the average youth!
Alas, alas! that such a state should be—
There's lymph for chinch bugs, is there none for me?"—*N. Y. World.*

THERE was on exhibition at the Cotton Exchange in Memphis a few weeks since a bale of cotton which had been picked by machinery, and the cotton brokers are talking of the beginning of a new era in the cotton business. The bale weighs 475 pounds, and was picked by the machine in two hours, notwithstanding the rain, on the plantation of C. C. Glover, near that city. The work done is equivalent to that of fifteen men for the same time. The cotton is much cleaner than that picked by hand, and will bring from three-eighths to one-half cent more per pound. The description of the working of "The Todd Harvester" has already been sent in the despatches of the Associated Press.

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[ORIGINAL COMMUNICATION.]

PREPARATION OF VOLUMETRIC SOLUTIONS.

BY

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As an outfit for volumetric analysis and for the preparation of the standard solutions required for it, the pharmacist needs but little apparatus in addition to that in daily use in his business. If he desires to limit himself to the absolutely indispensable articles and buy but a single *burette*, he should select one with a glass stopcock of 50 C.c. contents, divided into $\frac{1}{10}$ C.c. This is serviceable for all purposes. A single holder of wood or metal is needed to keep it in position. A somewhat cheaper but much less commodious substitute for this may be found in Bink's pouring burette, on a wooden foot, which is not only cheaper than the ordinary burette, but saves, in addition, the expense of a holder. Whenever a second burette can be afforded, it should be one with rubber tube and Mohr's spring clamp, which is much more convenient to handle than any other, but unfortunately cannot be used for such solutions as are affected by contact with rubber, such as silver nitrate, iodine, or potassium permanganate.

Besides the burette, a *pipette* with mark on neck to deliver 10 C.c. is indispensable. A second one of 25 C.c. will prove very useful. Whoever wishes to provide himself more abundantly will find good use for a graduated pipette with the cubic centimeters divided into tenths, but this may be readily dispensed with.

Whoever expects to buy his volumetric solutions ready-made needs no other apparatus. But such a plan would be as little advisable as that of buying paregoric and laudanum ready-made. It is generally both safer and more profitable to prepare the standard solutions than to buy them. For that purpose a few additional pieces of apparatus are needed. Most important among them is a *liter flask* with mark on the narrow neck for 1,000 C.c. A very convenient improvement is a double mark, the lower one indicating 1,000 C.c. received, the upper the same quantity delivered, the difference being the amount of liquid adhering within the bottle after emptying. Another flask with mark on neck for 500 C.c. and a third for 100 C.c. are very useful additions, but can be dispensed with. But an almost indispensable article, which is also very useful in examination of ether, amyl nitrite, chloroform, etc., is a small, *graduated, glass-stoppered cylinder* of 100 C.c. contents, divided into single cubic centimeters. A larger mixing cylinder, containing 1,000 C.c. or more, and graduated in quantities of 10 C.c., is very useful, but not absolutely necessary.

The absolutely indispensable outfit, therefore, consists of:

1 burette with glass stopcock, 50 C.c., divided into tenths	$2.70
1 burette holder (or, instead of both, a Bink's burette)	1.35
1 pipette with mark on neck at 10 C.c	$0.25
1 liter flask, 1,000 C.c. mark on neck (or two marks).	1.10
1 graduated cylinder, 100 C.c., divided into tenths...	1.20
Total	$6.60

Additional apparatus for a complete outfit:

1 burette, 50 C.c., with Mohr's spring clamp	$1.75
1 pipette, 25 C.c. mark on neck	.40
1 half-liter flask, 500 C.c. mark on neck	.75
1 tenth-liter flask, 100 C.c. " " "	.45
1 mixing cylinder, 1,000 C.c., in tenths C.c.	3.00
Price of complete outfit	$12.95

Of this price $2.20 may yet be saved by substituting the Bink burette.

It is evident that the question of cost alone will prevent but few pharmacists from preparing themselves to test their chemicals by the volumetric method. The necessary manipulations are not difficult to acquire and may be learned in a short time. The calculations will offer no difficulty when the Pharmacopœia serves as a guide; hence the only point to consider is whether the preparation of the standard volumetric solutions requires much outlay in money or unusual skill.

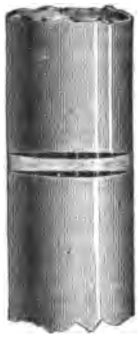
For pharmaceutical examinations about 11 volumetric solutions are in use, and a single liter of most of them, when carefully husbanded, suffices for 30 to 40 tests. None of the solutions require a large amount of costly material, and but few are more difficult to prepare than one of the ordinary prescriptions which are daily brought to the counter.

To make, for example, 1 liter of decinormal solution of silver nitrate, 16.96 Gm. of the pure, dry salt are weighed out, placed into the liter flask, and dissolved in distilled water of about 15° C., sufficient to fill the bottle to the 1,000 C.c. mark. As the surface of the liquid is not a level, but is drawn upward by adhesion wherever it touches the sides of the narrow neck of the bottle, the filling is done so that the lowest point of the curved surface coincides with the mark. According to the position of the observer, the flask is seen either on a light or a dark background, or against a piece of white paper held behind it, which reflects the light through the flask and contents; but whatever appearance the curved surface of the liquid shows in arrangement of light and shade, the lowest margin of the curve is taken as the guide index. (*See page* 18.)

In the use of pipettes, burettes, and mixing cylinders, the same rule is observed, and that mark of the graduation which coincides with the lowest part of the curve is read off. The narrower the tube, the more accurate will the observation be; the wider, the less accuracy can be obtained. Hence, whenever there is a choice in the use of vessels, the liter flask with narrow neck is preferable to the wide mixing cylinder, the pipette with narrow tube to the wider tube of the burette, etc. The silver solution when prepared is best preserved in small glass-stoppered bottles and protected carefully against dust and organic matter. Light will decompose it only when it is in contact with organic matter, etc. A mistake is often made in the filling of bottles, flasks, burettes, or pipettes, which injures the solutions, however carefully prepared. To get the vessels quite clean, they are thoroughly rinsed with distilled water, and the fact is lost sight of that distilled water is itself an impurity as regards volumetric solution. For if a flask or other vessel is filled while the inside is moist, the solution is thereby diluted. Hence the vessel must either be thoroughly dried, or, much better, must be rinsed once or twice with a small portion of the liquid it is to receive. After such rinsing it is clean for that particular liquid. This occasions but a small loss of the solution, and protects against errors and uncertainty. If the solid to be used in the volumetric solution is easily obtained pure and of constant composition—not subject to change in attraction of moisture or loss of water of crystallization—there is no difficulty in preparing from it the standard solution. The calculated molecular quantity is weighed out, placed in the liter flask, and dissolved in the menstruum (distilled water) at about 15° C., so as to fill the flask up to the desired mark. Sometimes a second or third is introduced, but the method remains the same as in making the decinormal solution of silver nitrate. Thus, 1 liter of the solution contains of:

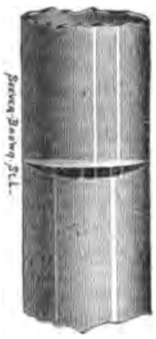
Oxalic acid, normal, 63 Gm. of pure crystals.
Oxalic acid, decinormal, 6.3 Gm.
Iodine, decinormal, 12.66 Gm., and 18 Gm. potassium iodide.
Sodium hyposulphite, decinormal, 24.76 Gm.
Sodium chloride, decinormal, 5.84 Gm.
Potassium bichromate, decinormal, 14.7 Gm.
Fehling's solution, 34.64 Gm. of cupric sulphate in half a liter, and 173 Gm. of Rochelle salt and 125 Gm. of dry potassium hydrate dissolved in another half liter. Both are kept separate, and, when needed, mixed in equal volumes.
Mayer's solution of mercuric potassium iodide is made by dissolving 13.546 Gm. of mercuric chloride and 49.8 Gm. of potassium iodide in water sufficient to make 1 liter.

FIG. 1



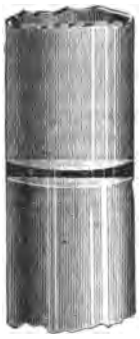
Dark background.

FIG. 2



Light background.

FIG. 3



White paper behind tube.

A little more difficulty is experienced in preparing other solutions—for example, normal potassium or sodium hydrate, normal sulphuric or hydrochloric acid, etc., as these substances are not found in conditions of sufficiently constant strength to permit direct weighing. The acids are more or less concentrated solutions of real acid in water. The alkaline hydrates absorb moisture and cannot, therefore, be relied upon. On the other hand, in the preparation of the standard solution of potassium permanganate, the distilled water may contain gases or other substances absorbed from the atmosphere, which decompose a small amount of the permanganate and render it unstable. Hence the general method followed for preparing volumetric solutions of these and similar bodies is to make the solution more concentrated than necessary and adjust it to the proper standard (titre) by dilution, so as to correspond to another equivalent solution which is used as a standard of comparison.

Thus, to prepare *normal solution of potassium hydrate*, 75 Gm. of the best white commercial potassa are weighed out (instead of 56 Gm. of pure KOH, necessary for 1 liter) and dissolved in somewhat more than 1 liter (about 1,050 C.c.) of distilled water contained in an ordinary bottle of sufficient size. With a few cubic centimeters of this solution (which is much stronger than normal) the 50 C.c. burette is now rinsed out, about 25 C.c. of the same are then poured in. By rapid opening and closing of the stopcock the jet below it is filled so as to contain no air bubbles, and the height of the liquid in the burette is read off by the graduation and noted.

A small amount of normal solution of oxalic acid is then made by dissolving 6.3 Gm. of pure crystallized oxalic acid in enough distilled water to make 100 C.c. Of this, 10 C.c. are measured out with a carefully rinsed pipette and permitted to flow into a small flask with wide neck, of about 100 C.c. contents, which has been washed with distilled water. A few drops of the solution of phenolphthalein (or other indicator) are added and the flask placed under the burette. From this the concentrated potassa solution is added in small portions and the flask shaken to mix the contents. At the place of influx of the alkali they assume a red color, which disappears on shaking, so long as the acid is not completely saturated. At last the addition of a single drop of potassa solution, more than necessary to saturation, produces a red color, which does not again disappear on shaking the flask. If too much has been added, the color will be a deep blood red instead of a pale pink, and another trial must be made. The strength (or titre) of the potassa solution is thus ascertained. Were it strictly normal, 10 C.c. would exactly saturate the 10 C.c. of normal oxalic acid, and a single drop in excess would render the mixture alkaline and reddent he phenolphthalein. If instead of this a less number of cubic centimeters were sufficient (*e.g.*, 8 C.c.), these 8 C.c. then contain as much KOH as should be contained in 10 C.c., and must therefore be diluted to 10 C.c. with distilled water. For the whole amount of the residue the proportion is then calculated by the following: 8 : 10 :: 1,000 : x, x = 1,250. One liter must then be diluted to 1,250 C.c. The residue is therefore poured into the liter flask, and exactly 1,000 C.c. measured out and poured into a larger bottle; 250 C.c. of distilled water are also measured out and added to this, and the whole amount thoroughly mixed. Another test is now made with this mixture, which is placed in the burette (first rinsed with it) and added to normal oxalic acid and phenolphthalein as before. Fifty C.c. of the acid are taken this time, and, on addition of 50 C.c. of the diluted potassa solution from the burette, should remain colorless, while a single drop more should color the liquid red. If this be the case, the liquid is now correctly standardized, and is preserved as *normal potassium hydrate solution*. If not exactly corresponding, the liquid is again adjusted by addition of water if yet too strong, or of the concentrated potassa solution remaining from the first trial, if too weak. Or the small error is noted on the label and used as correction in subsequent work. If the work has been carefully done, the liquid will be correct and need no further changes.

The adjustment may also be made by reversing the conditions—*i.e.*, placing the normal oxalic acid in the burette and measuring the potassa solution by means of the pipette into the flask. The phenolphthalein solution then added colors the potassa a deep blood red, and oxalic acid is added until the last drop just discharges the color. In the foregoing example 10 C.c. of potassa solution would have required exactly 12.5 C.c. of normal oxalic acid, and the calculation for diluting would have given the same results. Instead of the solution of phenolphthalein, litmus tincture, methyl orange, or other indicators may be used.

But why prepare of the concentrated solution above mentioned about 1,050 C.c. instead of exactly 1 liter? There is a good reason for this. For rinsing the burette a certain quantity, not exactly measured, is used, and for one or two tests 10 or 20 C.c. more. Hence, if exactly 1 liter of the solution had been prepared, a residue, not exactly measured, of about 970 or 980 C.c. would remain. Even if the operator were in possession of a mixing cylinder, accurate measurement of smaller amounts than 5 C.c. would not be very practicable; while if somewhat more may be measured in the liter flask with great accuracy, than 1 liter was made at first, 1,000 C.c. of the residue left and the water necessary for dilution added to this by measuring either with a 100 C.c. flask or 100 C.c. graduated cylinder, or both. The little surplus left may be made serviceable if by some inadvertence the mixture has become a little too much diluted, or may even be rejected without great loss. In exactly the same manner *normal solution of sodium hydrate* is made.

With the aid of the accurate normal solution of potassium hydrate thus prepared, the solution of sulphuric or hydrochloric acid may now be adjusted by applying the same method. For *normal sulphuric acid*, containing 48.9 Gm. of H_2SO_4 in 1,000 C.c., about 55 Gm. (30 C.c.) of the strong, commercial oil of vitriol are taken, which contains about 98 per cent of pure H_2SO_4, and this is cautiously mixed with a little more than 1 liter of water and permitted to cool to about 15 C.° The strength of this trial acid is ascertained, in the manner above described, with normal potassium hydrate, and in accordance with the result the remaining bulk of the acid is diluted with the necessary volume of distilled water.

For *normal hydrochloric acid* containing 36.4 Gm. of HCl in 1 liter, about 150 Gm. (130 C.c.) of the concentrated acid of commerce, containing about 32 per cent of HCl, are diluted to about 1,050 C.c. A sample is tested with normal potassium hydrate solution, and the bulk of the residue diluted in accordance with the result.

Normal oxalic acid, containing 63 Gm. of $H_2C_2O_4 + 2H_2O$, is easily made by weighing the crystals of the pure acid and dissolving in distilled water sufficient to make 1 liter at 15° C. This solution serves an excellent purpose, if used at once after pouring into the burette, but if left standing the titre changes from evaporation, and crystals form in the jet, as the normal solution is nearly saturated and therefore very prone to crystallize. It is therefore prepared in normal strength $\left(\frac{N}{1}\right)$ only in small quantities for immediate use, but in decinormal strength $\left(\frac{N}{10}\right)$ it forms a useful companion to the potassium permanganate, and, if carefully preserved, does not readily deteriorate. Instead of normal oxalic acid, normal sulphuric or hydrochloric acid is kept on hand.

Potassium permanganate in *decinormal* solution is of great value for the titration of ferrous preparations, oxalic acid, oxalates, etc. But as ordinarily prepared its usefulness is impaired by a slow but constant decrease of strength (titre) occasioned by reducing agents, either contained in the impure salt or in the water. Hence its preparation by direct weighing and solution of 3.14 Gm. of potassium permanganate implies the irksome necessity of ascertaining the strength (taking the titre) immediately before each examination made by its means. To obviate this tendency to change, and to furnish a solution which, if carefully preserved, will hold titre for months, it is best to make two solutions in boiling water, one stronger, the other weaker than the standard, letting them stand for forty-eight hours to deposit sediment, then ascertaining the strength of each by decinormal oxalic acid solution and mixing them in such proportions, ascertained by calculation, as will produce a solution exactly corresponding in strength to the decinormal oxalic acid.

The mode of preparation is as follows: To make the weaker solution 6.6 Gm. of $KMnO_4$ are dissolved in about 2,200 C.c. of boiling distilled water kept boiling for fifteen minutes, and set aside in a well-stoppered vessel for two days to deposit whatever sediment may form. The clear portion is then carefully decanted. For the stronger solution 3.5 Gm. of $KMnO_4$ are dissolved in 1 liter of boiling water and treated in like manner as the weaker solution. Each one of the solutions is then separately tested with decinormal oxalic acid containing 6.3 Gm. of $H_2C_2O_4 + 2H_2O$ in 1 liter, and the strength noted. For this purpose 10 C.c. of decinormal oxalic acid are brought into a suitable flask and 1 C.c. of concentrated sulphuric acid added. Before this mixture cools, one of the permanganate solutions is added from a burette in small portions. After every addition the flask is shaken, and, in case of cooling too much, heated over a lamp. The red color produced by the addition of the first portion of permanganate disappears somewhat slowly on shaking the flask, the subsequent additions do not require so much time, until finally a very slight excess produces a permanent pink color. The number of cubic centimeters of permanganate used to oxidize the 10 C.c. of decinormal oxalic acid is now read off and noted. The strength of the second permanganate is ascertained in like manner. An easy calculation now determines the amount of each solution necessary to make the mixture exactly of standard strength.

The following may serve as an example: The equivalent of the 10 C.c. of oxalic acid has been 10.5 C.c. of the weaker and 9 C.c. of the stronger acid. From the volume of the weaker solution (10.5 C.c.) deduct 10. The difference (0.5) is to be multiplied by the number of cubic centimeters of the stronger solution (9 C.c.). The product is 0.5 × 9 C.c., or 4.5 C.c. ***This is the number of cubic centimeters to be taken of the stronger solution.*** Next the number of cubic centimeters of the stronger solution needed to decompose 10 C.c. of oxalic acid (9 C.c.) is deducted from 10. With the difference (1) the number of cubic centimeters of the weaker solution (10.5) is multiplied, and yields (1 × 10.5 = 10.5 C.c.) the ***number of cubic centimeters of weaker solution to be taken.*** If now 4.5 C.c. of the stronger solution are mixed with 10.5 C.c. of the weaker solution, 15 C.c. of standard decinormal solution are obtained, which will exactly decompose an equal volume of oxalic acid $\left(\frac{N}{10}\right)$. Or multiply by 100, it will require 450 C.c. of the stronger and 1,050 C.c. of the weaker to make 1,500 C.c. of standard solution. In the present case we gave enough to take 2,100 C.c. of the weaker and 900 C.c. of the stronger solution to make 3 liters of standard solution The finished solution is then preserved in small, glass-stoppered bottles protected from dust and light.

For special purposes other solutions coming into occasional use need not be kept on hand, but are made as required. Thus, if the purity of certain oils is to be tested by the "*iodine number*," an equal volume of two solutions is mixed just as needed. One contains 5 Gm. of iodine in 100 C.c. of 94-per-cent alcohol, the second contains 6 Gm. of mercuric chloride in 100 C.c. of 94-per-cent alcohol.

For determination of the available chlorine in bleaching powder, etc., a *decinormal solution of sodium arsenite* is made by dissolving 4.95 Gm. of pure arsenic trioxide (anhydrous arsenious acid) in a sufficient amount of liquor sodæ and diluting with water to 1,000 C.c.

From these remarks it may be easily seen that neither the outfit for volumetric analysis nor the preparation of the necessary standard solutions will require a great deal of money or troublesome work. It is therefore very desirable that the useful and easily managed method of volumetric analysis should become more and more familiar to the pharmaceutical profession.

Notes on Essential Oils and their Derivatives.*

Oil of Elecampane.—The solid constituent of this oil, known as helenin (or helenic anhydride), which appears in form of crystals melting at 66° C., has been in considerable demand in Spain, where it is used as a remedy in cholera.

Oil of Angelica is in considerable demand for the American market. [It would be interesting to know what use is made of it besides as an ingredient in certain sauces and condiments.—ED. AM. DRUGG.]

Oil of Arnica.—Schimmel & Co. wonder what this expensive oil is used for. The larger proportion of all that is annually distilled—and this amounts to only a few pounds—is consumed abroad.

Oil of Betel Leaves, which has been favorably reported on as a remedy in diseases of the respiratory organs, will soon be available in larger quantities.

Oil of Camphor.—The *heavy* oil of camphor, which constitutes the fraction of the crude oil boiling between 240° and 300° C., and has a specific gravity of 0.970, is coming more and more into technical use.

It has a pale green color, and, though it is volatile, is of oily viscosity. It is difficultly inflammable, and therefore very safe (for instance, to replace benzin in printing offices). Like all ethereal oils, it is a disinfectant and antiseptic. It is capable of dissolving resins and even caoutchouc abundantly, and when added to varnishes renders them less brittle on drying.

It is very useful for covering the odor of mineral oils, axle grease, etc., without impairing their lubricating properties. It also is an excellent disguiser of the greasy odor of tallow and soap.

Oil of Cassia.—The correspondents of Schimmel & Co. at Hong Kong report that the Chinese have at last confessed the previously denied adulteration of oil of cassia with resin and mineral oils. Since unadulterated oil of

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* From the October report of Schimmel & Co., Leipzig.

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EDITORIAL.

THE NEW ERA OF INOCULATION.

When England's present poet-laureate wrote in "Locksley Hall" that

> "Science moves but slowly—
> Slowly creeping on from point to point,"

he expressed a truism which is open to some very notable exceptions. While as a rule the announcements of great discoveries in science *have* been made at rare intervals, there have been epochs, on the other hand, when scientific processes seemed to come rapidly "to a head," as is sometimes said of boils and pustules, and when facts of great value have been formulated with an exactness that has added materially to the sum of the world's wisdom.

Sometimes, indeed, these "epochs" have been more than epochs, and have expanded into *eras* of development. It is perhaps safe to say that the present time affords an instance of the latter in the number and importance of valuable discoveries. In this article we have reference only to those facts, experiments, etc., that relate to the science of therapeutics or applied medicine, and the mind reverts naturally to the lymph treatment of tuberculosis, lupus, etc., by what may be called the Kochian method. The science of medicine will be led to make its attack on certain diseases—of which phthisis may stand as the general name and type—on entirely different lines. It is an era of warfare against the bacillus and the microbe, the smallest and at the same time the most deadly enemies of humankind.

The attack on the chinch bug is one of the latest forms of the new crusade that is incidentally for the good of humanity. It is on a parallel line with the treatment of infected human tissue. Prof. F. H. Snow, State Entomologist of Kansas, has been experimenting for two years to perfect his plan for the spreading of a contagious disease among chinch bugs, with a view to exterminating this worst of all the pests with which Western farmers have to contend. Prof. Snow has found that there are three different causes of death among these bugs: First, the attack of "a certain bacterial germ." It is said that myriads of these minute, animated atoms may be seen with a microscope in the body of the diseased bug. The second cause is the growth of "a white fungus, the spores of which are carried by the wind, and are thus easily scattered over the entire field." The third is the presence of "still another fungus, which differs from the white fungus in color." These fungi have scientific names, and have been studied and described by various scientific men. Now, while the chinch bug attacks the wheat and corn, these moulds and bacteria are to attack the chinch bug, and, from the measure of success already achieved, it looks as if the odds are ten to one against the bug.

In the light of recent developments it looks as if the old saying of "big fish eat little fish" would lose much of its force, and that the truth of the humorous statement in a familiar poem, that

> "The very fleas upon our backs have lesser fleas to bite them,"

receives every day a fresh and startling demonstration. It is the smallest, the most infinitesimal of our enemies that are the most dangerous; while to the devout student of nature it exalts the inscrutable knowledge and illimitable power of Him who is "Great in great things, but greatest in the least."

LYMPH vs. LEPROSY.

New-Yorkers were startled just before Christmas by the announcement made in one of the daily papers that a *bona fide* case of leprosy had been discovered in a Chinese laundry on Ninth Avenue near Forty-seventh Street. The stricken Chinaman was removed first to a house on Pell Street, the heart of the Chinese quarter, and was afterwards taken to an isolated ward in Bellevue Hospital, where it was proposed to try experiments with the Koch lymph on his case. The fact that his leprosy was regarded as *incurable* leaves but small grounds to hope for a favorable result. But even should this attempt fail, it may nevertheless be demonstrated in future that *incipient* leprosy, like incipient lupus, may be overcome by this new remedial agent. According to the laws among the Chinese, this poor leper would be in duty bound to commit suicide for the good of his fellow-men so soon as it becomes known that his case is beyond recovery. Unless the wonderful lymph shall destroy the bacilli of this disease, it will matter little to the ill-fated Mongolian whether he be removed by suicide, homicide, or the *pallida mors* of leprosy.

THE LESSON OF FASTING.

The fact that an Italian man by the name of Succi has just succeeded in abstaining from all solid food, and also all liquids of a nourishing character, during a period of forty-five days in this city, is one well calculated to command at least the passing notice of the medical profession in particular, and other people in general.

The thoughtful observer naturally inquires, *cui bonum?* What is the excuse for such a voluntary act of self-starvation? Does it teach any lesson worth knowing? etc.

To the first two of these questions there are two ready and obviously reasonable answers. First of all, as to *who is benefited*, it is plain that Signor Succi himself is reaping quite a comfortable reward in the matter of others) which are distinguished by an agreeable mélisse-like odor, and promise to become very useful in perfumery and in soap manufacture.

The consumption of oil of eucalyptus (globulus) has not increased; one reason is that oil of cajuput has been found to be a profitable source for preparing eucalyptol (cineol).

Oil of Geranium.—Réunion and Mauritius have commenced to furnish this oil to the market. The Réunion oil is reported to be very fine. Its spec. grav. is 0.899; that of the Algerian oil is 0.891.

Oil of Gingergrass, also called Turkish oil of geranium, has become quite expensive, and is rarely obtainable in a pure state. Most of the oil which is distilled in the district of Nimar is adulterated, by the distillers themselves, with oil of turpentine which is sent to them from Bombay. The ordinary oil of gingergrass of the market is always adulterated with oil of turpentine.

Oil of Orris Root.—Florentine orris root has again been a failure this year, and what there is is of poor quality. Prices have advanced much and will go still higher. Schimmel & Co. hold out but little prospect of being able to supply the requisite amount of "oil of orris" under these circumstances.

Oil of Caraway.—The only safe criterion for the quality of this oil is the percentage of carvol. The new German Pharmacopœia recognizes as "Oleum Carvi" only carvol, which word is chosen as the German translation of "Oleum Carvi." The previous edition of the Pharmacopœia intended to do this likewise, but, owing to the absence of the word "carvol," the matter was left in doubt. The spec. grav. of carvol is given in the Germ. Pharm. as 0.96.

Oil of Lavender.—Some time ago a test for the presence of oil of turpentine in oil of lavender was proposed, which consisted in dissolving the latter in 3 parts of 70-per-cent alcohol at 16° C. It was claimed that a pure oil would dissolve perfectly, while an impure oil would not.

Schimmel & Co., however, show by proofs that this test is entirely unreliable. If the distillation of oil of lavender is pushed so as to drive over even the highest boiling fractions, the oil, though pure, will not dissolve to a clear liquid in 70-per-cent alcohol.

Oil of Almonds, expressed.—Schimmel & Co. point out that the two tests for the purity of this oil given by the new German Pharmacopœia are neither of them alone sufficient to decide this, but that *both together* must be complied with. The two tests are:

1. On briskly shaking a mixture of 1 C.c. of fuming nitric acid, 1 C.c. of water, and 2 C.c. of oil of almonds, a whitish, not red or brown, mass must be formed, which separates, after standing for some time at a temperature of about 10° C., into a firm, white mass and a scarcely colored liquid.

[This test will show the presence of peach-kernel and apricot-kernel oil, also sesame and cottonseed oil, which will produce a red or brown color.]

2. Mix 10 C.c. of oil of almonds with 15 C.c. of solution of soda and 10 C.c. of alcohol, stir well, and set aside at a temperature of 35°–40° C. until the mixture has become clear. Add 100 C.c. of water so as to produce a clear solution. On now adding an excess of hydrochloric acid a layer of oleic acid will separate which, after being separated, washed with warm water, and clarified on a water bath, should remain liquid at 15° C. One volume of this oleic acid should yield, with 1 volume of alcohol, a clear solution which should not separate any fatty acids at 15° C. nor be rendered cloudy on adding to it another volume of alcohol.

Schimmel & Co. state that this test is acceptable only if the requirement, that the separated oleic acid should remain liquid at 15° C., is to be understood in the sense "that it may become turbid, but should also remain liquid." Absolutely pure almond oil of their own manufacture showed that the oleic acid, under the above conditions, is sometimes turbid and non-transparent after it has been kept at 15° C. for some time. Of course the oleic acid layer must not become hard or mushy. This would indicate an adulteration with olive, peanut, cottonseed, poppy, walnut, or other oils. Apricot-kernel oil, however, would not be shown by this test, since the oleic acids derived from this retain their fluidity even at 10° C.

Oil of Peppermint.—Dr. Ed. Polenske has recently investigated the color reactions of this oil. He found, also, that an oil which had for some time been exposed to sunlight loses the faculty of yielding color reactions with acids.

The last Netherlands Pharmacopœia requires that a mixture of 5 drops of the oil with 20 drops of glacial acetic acid should gradually acquire a dark-blue, coppery-fluorescent tint.

Schimmel & Co. have found that the formation of the coloring matter depends upon a process of oxidation, and that no color is produced if air is excluded. If the mixture is exposed to light in a tightly corked vial, a bluish tint is scarcely noticeable and does not increase even on long standing. Admission of air, however, soon produces a dark color and a coppery fluorescence by reflected light. The reaction requires some time to develop, sometimes several hours.

Curiously enough, the Japanese oil of peppermint does not give this reaction, or but in a faint degree.

Oil of Rose.—Schimmel & Co. put on the market an oil of rose which is mechanically deprived of its stearopten. The large quantities of the latter which have accumulated at the factory induced the firm to investigate the nature of this stearopten, which, up to the present time, had been regarded as a homogeneous chemical individual. It was found that it could be divided into two bodies, one of which melts at 22° C., while the other melts at about 40° C. At first it was supposed that this was due to an adulteration, since all this stearopten was obtained from Bulgarian oil of rose. But Schimmel & Co. obtained the same results with stearopten separated from oil of rose distilled by themselves. It is therefore proven that the stearopten of oil of rose is a complex body; probably it consists of a whole series of homologous hydrocarbons.

Oil of Star Anise.—The districts in which star anise grows, in the province Lang-sou, are now probably entirely under French dominion. At all events, the trade in star anise and its oil will, from January 1st, 1890, be a monopoly in the hands of a French house at Hanoi. It remains to be seen what the price will be under the new conditions.

Oil of Wintergreen.—An artificial oil of wintergreen, manufactured in Hamburg, has recently appeared in the New York market. This oil contains some methyl benzoate ("oil of Niobe"), which can be recognized by the odor alone. Its specific gravity is only 1.133, while the pure methyl salicylate has one of 1.180. Pure methyl benzoate has the spec. grav. 1.095. The new Hamburg product, therefore, probably consists of equal parts of methyl benzoate and salicylate.

Oil of Ylang.—Ylang is now also cultivated with success in Réunion. The first oil distilled there has turned out very satisfactory. It was found to have a much higher spec. grav. (0.974) than the best oil distilled in the Philippine Islands (0.947).

Oil of Sassafras.—Schimmel & Co. warn against a spurious or impure safrol which has lately been put on the New York market. It has not been sufficiently purified from other constituents of oil of camphor from which it is extracted, and has even a lower spec. grav.—viz., 1.048—than the poorest commercial oil of camphor itself, while pure safrol has the spec. grav. 1.180.

◆

The Number of Retail Liquor Dealers in the United States, according to the official returns of the officers of the internal revenue for the year ending May 1st, 1890, was 185,868, or 1 liquor dealer to every 275 inhabitants, on the basis of the census of 1880. In New York there was 1 retail dealer in distilled liquors to every 150 inhabitants; in New Jersey, 1 to 175; in Ohio, 1 to 230; in Pennsylvania and Massachusetts, 1 to 400; in Indiana, 1 to 325; in Delaware, 1 to 160; and in California, 1 to 75. The average in all the States which have general license laws is 1 dram shop to 250 inhabitants. In Maine there is 1 retail dealer in distilled liquors to every 750 inhabitants; in Vermont, 1 to 820; in Iowa, 1 to 520; and in Kansas, 1 to 800.

VACUUM APPARATUS.

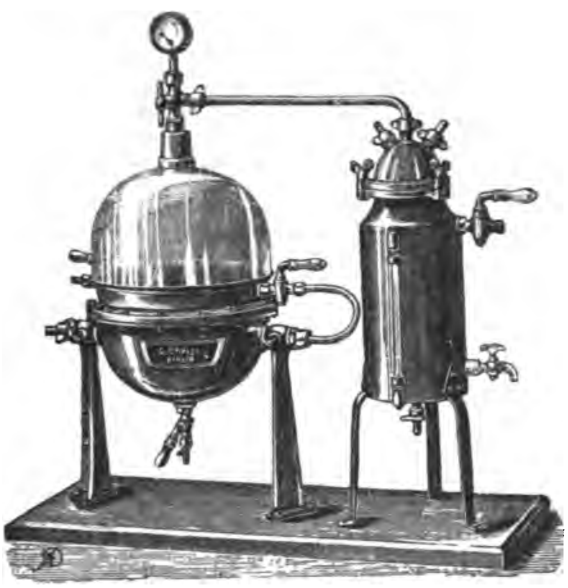
We have had inquiries directed to us recently regarding the best form and the place of manufacture of small vacuum apparatus suitable for making solid extracts, or concentrating liquids containing odorous principles. We have given to our correspondents several addresses of manufacturers, but we are informed that the latter do not make such apparatus except upon order, and that the form and style of the large vacuum pans made for sugar houses, condensed-milk works, etc., is too cumbrous and complicated when reduced to the small scale demanded by our correspondents. Offers were made to design and construct vacuum apparatus of a simpler construction, but no guarantee was given that it would work well. As an alternative it was proposed that the party requiring the apparatus should furnish a design with specification, whereupon it would be executed in the most substantial style.

This latter proposition appears to us a fair one, and we have advised its acceptance. But our correspondents preferred to look about elsewhere, in order to see whether a ready-made apparatus could not be obtained. We then drew their attention to one which was described some time ago in the *Pharmaceutische Centralhalle* (1890, 148), which was devised by Eugene Dieterich. As this may be of use to others of our readers, we give an illustration and description here.

This apparatus consists, first, of a vacuum pan which can be heated either with steam or hot water, and which is covered by a glass bell; and, second, of a condenser. The aspiration of the vapors generated in the liquid in the vacuum pan by heat is effected by means of a so-called injector, or water jet, inside of the condenser. Of course it is necessary, for its successful working, to have at hand a suitable supply of water under pressure. The vapors are not only aspirated or drawn over, but they are at the same time condensed, so that if they consist, for instance, of alcohol, the latter may be recovered.

Experience has shown that the mode of exhaustion by means of a water jet is sufficient for an apparatus of the capacity of about 5 quarts. When it is materially larger, an air pump becomes necessary.

The apparatus here described is made by Gustav Christ, Blumenstrasse 74, Berlin.



Christ's Vacuum Apparatus.

The Detection of Iodine.

The reaction of potassium iodide with the platinic salts, mentioned in Watt's "Dictionary of Chemistry," vol. iii., p. 288, furnishes a valuable test for the soluble iodides, being characteristic and delicate. The manner of making the test is as follows:

To the solution in a test tube add one or two drops of solution of platinic chloride. As the platinic chloride mixes with the liquid a beautiful red coloration is produced, due to formation of platinic iodide. If much iodide be present, the solution becomes black, with subsidence of a brownish precipitate.

Free potassa, ammonia, and hydrochloric acid require the addition of a large amount of the platinic chloride. It is therefore best to have it neutral, or acid with sulphuric acid. The reaction is plainly visible if $\frac{1}{18000}$ part of iodine be present, and is readily seen, though faint, with $\frac{1}{66780}$ part of iodine. The test has been subjected to a large number of trials to prove its value, with most satisfactory results.—W. H. Seamon in *Chem. News*, November 21st.

On Strychnine and Some of its Salts.

Some doubt having recently again been thrown upon the correctness of the now recognized formula of strychnine—which is that established by Regnault, viz., $C_{21}H_{22}N_2O_2$—C. Stoehr has made a careful re-examination of the subject and finds that the above formula is undoubtedly correct.

In the course of his paper (in *Journ. f. prakt. Chem.*, 42, 399), the author gives some data regarding some salts of strychnine which deserve recording:

Hydrochlorate of Strychnine. The formula $C_{21}H_{22}N_2O_2.HCl.1\frac{1}{2}H_2O$ is confirmed.

Hydrobromate of Strychnine has the composition $C_{21}H_{22}N_2O_2.HBr.H_2O$.

Hydriodate of Strychnine has the same composition as the last named, except that iodine is in place of bromine.

All three salts may be deprived of their water of crystallization by drying over sulphuric acid. On exposure to air they rapidly reabsorb it.

Regarding the melting point of strychnine, the author found it to be 265°-266° in a sample received from Merck. When the crystals were purified by recrystallization, the melting point rose somewhat. At 260° the powder became darker, and at 269° it melted to a dark brownish yellow liquid without evolving gas. The true melting point is probably between 268° and 269°C.

Zinc Sulphite as an Antiseptic.

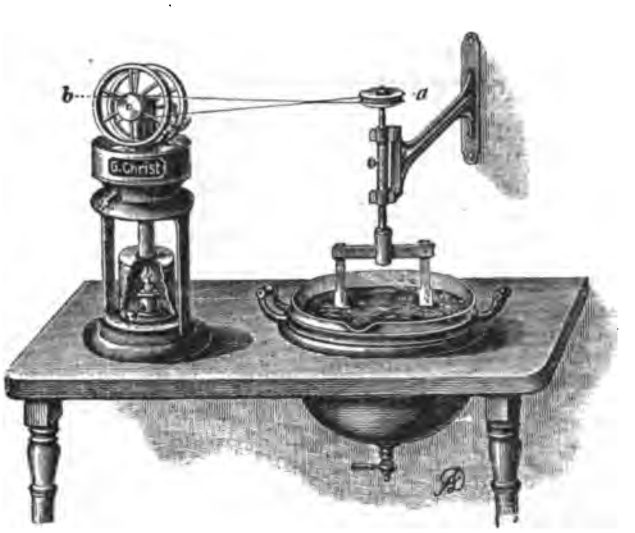
Twenty years ago, in a paper read before the British Pharmaceutical Conference at Liverpool, Professor Tichborne called attention to the possible value of zinc sulphite as an antiseptic. Recently he has again suggested it as a material for the preparation of antiseptic dressings, and Dr. Heuston reports that for this purpose he has found it superior to sal alembroth [mercuric chloride with ammonium chloride], it being non-poisonous, non-irritative, and highly antiseptic (*Brit. Med. Journ.*, November 8th, p. 1064). Professor Tichborne states that zinc sulphite is best prepared by mixing in solution six parts of zinc sulphite and five and a quarter parts of sodium sulphite. The reaction takes place slowly, but goes on to completion; the new salt, which forms as a white crystalline precipitate, being very insoluble in water, though soluble in excess of sulphurous acid. Dried at 100° C. it has a composition represented by the formula $ZnSO_3.2H_2O$, but if only dried at the ordinary temperature it contains another molecule of water. In contact with water it undergoes a slow but regular oxidation, which, in an experiment with a saturated solution, was complete on the eighteenth day. Zinc sulphite can be used for the saturation of any fabric, such as gauze or lint, without the intervention of an adhesive material. The fabric is first boiled with water to cleanse and sterilize it, after which a boiling solution of zinc sulphate and sodium sulphite in equivalent proportions is poured upon it, and when thoroughly mixed and saturated the whole is allowed to stand for twelve hours. The zinc sulphite is said to be deposited in and about the fibres of the fabric in microscopic crystals, soft and even unctuous to the touch. The fabric is then passed under rollers submerged in water, to remove traces of sodium sulphate. It is suggested that this kind of dressing might be dyed with an organic pigment to distinguish it from others, and for the purpose of indicating the progress of the discharges by the action of liberated sulphurous acid on the color.—*Pharm. Journ.*

AN AUTOMATIC STIRRER.

In connection with the vacuum apparatus described on page 22, the *Pharmaceutische Centralhalle* (1890, 150) figures a new and improved stirring apparatus very useful in concentrating extracts. It is also made by Gustav Christ, of Berlin.

The two-armed stirrer is held by a bracket fastened to the wall. The stirrer is operated by a small hot-air motor which works on the principle of Ericsson's caloric engine. For moving the latter, either a gas flame or a lamp may be used.

[Of course, if the liquid to be evaporated gives out inflammable vapors, proper care must be taken to prevent the vapors taking fire from the flame.—Ed. Am. Drugg.]



Christ's Automatic Stirrer.

Improved Manufacture of Potassium Cyanide.

This method for the production of potassium cyanide —which depends, in the first place, upon the formation of potassium sulphocyanate, and the conversion of that substance into potassium cyanate, and, lastly, that of potassium cyanide—is brought about as follows: A proportionate quantity of carbon disulphide is blended with an equal bulk of mineral oil, to which is added a convenient quantity of water. Ammonia gas is now introduced until the whole of the CS_2 is converted into ammonium sulphocarbonate. The concentrated solution thus formed is separated from the remaining oil and a fresh quantity of CS_2 added, the action proceeding as before. The solution containing the ammonium sulphocarbonate is now allowed to boil until all traces of ammonium sulphide have been expelled, the ammonium sulphocarbonate becoming converted into ammonium sulphocyanate.

To the solution, while still hot, is introduced a sufficiency of KHO, and the heat maintained while any NH_3 gas continues to be evolved, the gas thus expelled being utilized for the production of a further quantity of ammonium sulphocarbonate. The resulting solution of KCNS thus formed is evaporated to dryness and introduced into a deep crucible, being subjected to a dull red heat in contact with litharge; the KCNS thus being converted into potassium cyanate, with the production of PbS. The crucible, with its contents, is then allowed to settle, and the melt removed by decanting into a further pot furnished with a perforated lid and containing lump carbon; the heat is now raised and continued at full redness as long as any traces of CO_2 or CO continue to escape. The resulting KCN thus obtained is poured from the pot and received into suitable moulds.—H. N. Warren in *Chem. News*, November 21st.

◆

Fatal Poisoning with Salol.—Dr. Hesselbach has reported the case of a young man, suffering with rheumatism, who took by mistake 2 drachms of salol. Coma resulted, with great dryness of the tongue, anuria, and death on the second day. At the necropsy the kidneys were found to be soft, anæmic, and of a pale yellow color; microscopically, the glomeruli were full of embryonic cells and leucocytes, the convoluted tubes were tumefied, and fatty degeneration had begun. The tubuli were filled with degenerated epithelium. There were no other lesions attributable to the drug. The toxic principle was the carbolic acid that is generated from salol in the system. The author believes that salol should be prescribed with caution, and the condition of the kidneys, as indicated by the urine, watched.

Separation of Antifebrin and Phenacetin.

In view of the possibility of the difference in cost leading to a sophistication of phenacetin with antifebrin, a number of tests for the presence of acetanilide have been published, a digest of which has already been given in "The Month" (*Pharm. Journ.* [3], xviii., 1085). To these may now be added a method of determining within certain limits the proportions of acetanilide and phenacetin in a mixture based upon their differing solubilities, which was worked out by Dr. Will for the purposes of the investigation referred to in the preceding paragraph (*Apot.-Zeit.*, October 22d, p. 652). It was found that 1 Gm. of acetanilide shaken for half an hour with 200 C.c. of cold water dissolved completely, and did not separate after standing for a day at the ordinary temperature.

On the other hand, when 0.5 Gm. of phenacetin was shaken for the same time with 200 C.c. of water, only 0.13 Gm. was dissolved. Upon shaking 1 Gm. of a mixture of equal parts of acetanilide and phenacetin with 200 C.c. of water, the whole of the acetanilide went into solution, with only 0.13 Gm. of phenacetin; the residual phenacetin, when separated and washed with water, being quite free from acetanilide.

In two other experiments, in which the proportions of the two compounds were slightly varied, it was found that the weight of the undissolved phenacetin, added to 0.13 Gm. as the quantity dissolved in 200 C.c. of water, corresponded to the quantity present in the mixture used. —*Pharm. Journ.*

Coca Leaves.

The trade in coca leaves has lost much of its importance since the crude cocaine commenced to be manufactured in Peru and exported hence to Europe, and principally to Germany, where the cocaine manufacturers find it to their advantage to use it in preference to the leaves. From South America the leaves are imported in bales weighing from 1¼ to 4 cwt. There is no regular season of import, as there are two or three harvests of coca leaves in South America every year, and the produce—or what is shipped of it—is mostly sent to Hamburg or New York, which are the principal markets for coca. In 1881 the imports into Hamburg were only 23 bales of this drug, which was then slowly working its way into favor. In 1886, after the discovery of the medicinal virtues of cocaine, the imports reached 1,720 cwt., but since then they have again declined considerably. New York exported about 1,800 cwt. Coca leaves have occasionally been imported from British India, and during the last two or three years some progress is apparent in the exports from Ceylon and Java.

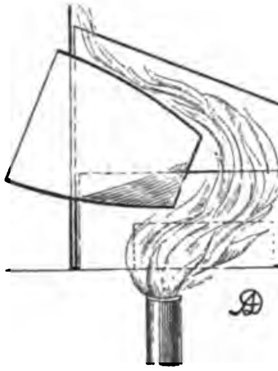
The Ceylon leaves are often of excellent quality, well cured and preserved, and characterized by the fine bright green color and tea-like odor which distinguish the best quality of leaves. They are sometimes put up in small tin-lined boxes, which is without doubt the most suitable mode of packing. The Java coca leaves which have been received thus far are usually badly dried, and very small and brown. They are occasionally crushed before shipment. The weight of a package of Ceylon or Java leaves is usually about 40 lbs.—*Chem. and Drugg. Diary.*

◆

Oxide of Lead in a Loaf of Bread.—The oxide of lead found in the bread of the Chicago baker has been traced to the stencilling of the name of the miller on the bag containing the flour from which the bread was made, the color having been put on so heavily that it soaked through the cloth.

IMPROVED METHOD OF INCINERATION.

H. VON JUEPTNER recommends the use of a sort of hood made of asbestos for compelling the flame to play around and over a crucible during the process of incineration. The shape of the flue or hood and the position of the crucible will be easily intelligible from the accompanying illustration. The hood, of course, must be supported by a suitable frame.—*Chem. Ind.* and *Z. anal. Chem.*, 1890, 433.



Gum Arabic.

THE true Kordofan gum has for several years been practically falling on our [English] markets. It used to reach us (and a few odd packages still do so occasionally) in large bales or serons, weighing from 300 to 500 lbs., and containing "sorts"—*i.e.*, unsorted gum as received in Cairo or Alexandria from the traders who bring it down the Nile ; or it came *via* Trieste, the great sorting market, in cases of about 300 to 400 lbs., containing the "first" and "second picked" or superior varieties, or in bags containing the lower grades.

Turkey gum arabic, being hygroscopic, has, with a few other drugs, the property of gaining weight by being kept in the warehouse—a property which is by no means unknown or despised by the wholesale dealers.

The leading variety of gum arabic at the present time, so far as pharmaceutical gums are concerned, is undoubtedly the Senegal gum, of which the commercial headquarters in Europe are at Bordeaux, the drug being collected in the French Senegal territory. Senegal gum is divided into "Bas-de-Fleure" (*i.e.*, "Lower River") and "Galam." All gum now used in pharmacy, it is safe to say, contains a very large percentage, if it does not exist entirely, of Senegal gum which has been picked and sorted in France or in Trieste. A useful kind of pale gum is imported from Mequinez, Mogadore, and other ports in Morocco. It occurs in bold round or oblong tears, friable, of a soft, dull appearance, and varying in color from cream to dark orange-red.

This variety is known as "white Mogadore" or "white Barbary" ; while a gum which occurs in small, glassy, dull-brown pieces, and is imported from the same quarter, is known as "brown Barbary" gum. This gum is much less valuable than the white gum.

Mogadore gums are brought over in casks of about 1¼ cwt.

From South Africa two varieties of gum are imported—one the hard brown Cape, which is obtained from *Acacia horrida*. This has been known for many years, and is described in "Pharmacographia"; but during the last six or seven years another variety has been regularly consigned to the London markets. This is "soft white Cape," which is gathered in the northern parts of Cape Colony beyond the Orange River. Fine picked white Cape is as fine in appearance as any Kordofan gum, and is exceedingly like the old Turkey gums. London is the principal market for East Indian gums, the use of which has greatly increased since the scarcity of Kordofan gums commenced.

East Indian gums come over in cases, bags, or bales, varying in weight from 2 to 6 cwt.

The total exports of British Indian gums and resins during the last five seasons have been, in cwts. :

1884–5	1885–6	1886–7	1887–8	1888–9
19,814	55,407	24,401	37,132	62,645

—*Chem. and Drugg. Diary.*

NEW BUTYROMETERS.

NILS G. K. HUSBERG, of Arboga, Sweden, has patented a butyrometer which is here illustrated (Fig. 1). It is in form of a syringe. A definite quantity of milk, at normal temperature, is first introduced, the amount being determined by graduation on the cylinder, next certain chemicals (acid of a definite strength, etc.) described by the patent, and finally the piston is inserted. Separation of the butter is promoted by brisk shaking. When the butter has all been separated it is pushed, by means of the piston, into the narrow nozzle of the syringe, where its height is read off. If proper care is used and uniform temperature maintained, the apparatus is said to give fairly good results (Germ. Pat. 50,988). Of course its readings would not be reliable enough to condemn any one for adulteration. But this is not the object. The principal object is to place in the hands of the common people an instrument which will approximately show whether some particular sample of milk is normal or requires further examination by actual analysis.

FIG. 1.

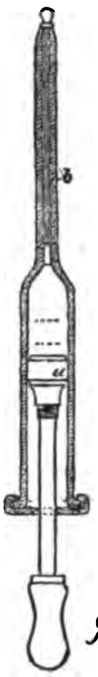
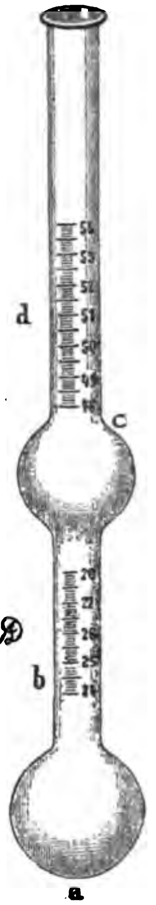


FIG. 2



Another butyrometer is that shown in Fig. 2. It has been devised by Bodzynski, the process for determining the fat being that proposed by W. Schmid in *Zeitsch. f. anal. Chem.*, 1888, 464.

Ten Gm. of milk are introduced into the bulb *a*, next 10 C.c. of concentrated hydrochloric acid are added, and the mixture heated over a flame. It will boil quietly without foaming. When the albuminoids which have at first separated are completely redissolved, the solution is cooled off, under a stream of water, to about 40° C. (104°F.). 30 C.c. of ether are then added, the whole well shaken, and then set aside, either at the ordinary indoor temperature, or, better, in a water bath at 40° C., during 15 or 20 minutes. [Ordinary hydrous ether must be used. If stronger ether is employed, too much will be lost at the prescribed temperature.—ED. AM. DRUGG.] The column of liquid representing the milk and acid will now reach up beyond the mark 24 on the graduated scale, while the ethereal solution is above it. When the foamy zone between the two layers has disappeared, the volume of ethereal solution is read off. A definite portion of this is now evaporated in a tared capsule, and from the weight of the butter thus found the total amount of that contained in the sample of milk is easily calculated.—After *Dingl. Polyt. Journ.*

Florida Water.

Oil of Lavender	2 drachms.
Oil of Bergamot	2 "
Oil of Lemon	2 "
Oil of Neroli	1 "
Oil of Melissa	30 minims.
Otto of Rose	10 "
Tincture of Turmeric	1 drachm.
Spirituous Menstruum	32 fl. oz.

Mix. —*Chem. and Drugg. Diary.*

[The spirituous menstruum intended is so-called cologne spirit, of which about 30 fl. oz. are taken at first for dissolving the oils. Then a little distilled water is added, sufficient to produce a faintly opalescent mixture after shaking, and the liquid then cleared up again by adding enough alcohol to make 32 fl. oz.—ED. AM. DRUGG.]

On the Constituents of the Artificial Salicylic Acid of Commerce.

PROF. W. R. DUNSTAN and MR. O. F. C. BLOCH have made a study of the artificial salicylic acid at present sold in commerce, with a view of determining the nature of any accompanying impurities. This investigation was chiefly undertaken to ascertain the reason why untoward results had recently been observed and reported, after the administration of the acid, by several authorities.

The presence of certain impurities commonly existing in the acid was first pointed out in 1878 by John Williams, but the nature of the impurity was not made out. In 1888 Ewell and Prescott ascertained that the contaminating substances were probably acids derived from the cresols and xylenols contained in the crude phenol from which the salicylic acid was made. Bernhard Fischer examined the subject in 1889 and found similar results (for details we must refer to the original paper of the authors in *Pharm. Journ.*, November 22d). One of the authors had examined in 1884 an acid which Mr. Williams had separated from artificial salicylic acid. This was found to be a variety of hydroxytoluic or cresotic acid, viz., beta-cresotic acid, or, as the authors propose to call it, ortho-cresotic acid. A specimen of this acid was sent to Dr. Charteris (who is one of the authorities through whom the bad quality of artificial salicylic acid has lately again been drawn attention to). This physician found it to be possessed of strongly toxic properties.

Another contaminating acid, likewise extracted by Williams, was examined by the authors, and found to be the so-called homosalicylic or gamma-cresotic acid; they propose, however, to call it meta-cresotic acid.

These two acids are derived from ortho- and meta-cresol, existing in the phenol from which the salicylic acid is prepared.

Melting Point of Salicylic Acid.—As is the case with most organic compounds, salicylic acid has been stated to melt at various temperatures. These temperatures range between 155° and 159° C. The principal chemical treatises accept as most correct the determinations of Hübner (*Annalen*, 162, 74) and Kohler (*Ber.*, xii., 246), who stated the melting point to be between 155° and 156°. The best of those commercial specimens which occur in small crystals melt near these temperatures. The British Pharmacopœia states that salicylic acid should melt at "about 155° C.," whether it has been prepared from oil of wintergreen or from phenol. B. Fischer has pointed out that the pure acid melts at 156.8° C., but he did not sufficiently investigate the question to satisfactorily establish this as the correct melting point. As it was of considerable importance, in connection with the inquiry which the authors were making, to know for certain at what temperature pure salicylic acid melts, the following experiments were made: The melting point of some fine crystals of salicylic acid obtained from oil of wintergreen was 156.75°. The crystals were dissolved in alcohol, and the solution partly precipitated with water, when a mass of woolly crystals was obtained; these also melted at 156.75°. The acid was in the next place converted into its sodium salt, and the solution partly precipitated with silver nitrate. The precipitate was well washed, the acid recovered from it and crystallized from alcohol. The crystals melted at 156.75° C. The acid was also recovered from the salt which remained dissolved in the filtrate from the silver precipitate, and was crystallized from alcohol. This also melted at 156.75°. Further evidence that the acid melting at this temperature was pure salicylic acid was gained from an analysis of its silver and lead salts.

The authors now proceed to detail the methods by which they attempted to isolate the impurities in the commercial salt. They first converted the acid into the calcium salt, and sought to separate this into various fractions sharply distinguished by having different melting points. While this was but partially successful, they nevertheless discovered in the last fraction obtained a new acid, melting at 151° C., which was ascertained to be another variety of hydroxytoluic acid, heretofore known as alpha-cresotic acid, but which the authors propose to call para-cresotic acid, as it is derived from para-cresol.

Omitting further details regarding unsuccessful attempts to purify the commercial acid, we at once pass to that portion of the paper in which the authors give an account of the method finally hit upon as best suited for the purpose. It should be premised that on converting the acid into the lead salt, they saw their way clear towards the desired end. But at first they used acetate of lead for precipitation, which became inconvenient on account of the acetic acid which was set free. Finally they hit upon the plan of using lead carbonate.

Five Gm. of the same commercial specimen of salicylic acid, which had been successfully purified by means of lead acetate, were boiled with 300 C.c. of water and an equal weight of precipitated lead carbonate, until all chemical action had ceased. The turbid liquid was filtered while hot, when some of the basic lead salt, together with a little unaltered lead carbonate, was removed.

The filtrate crystallized as it cooled, yielding a large first fraction of lead salt, and by repeated evaporations of the filtrate three other fractions were obtained. Each fraction was well washed with cold water, and the acid recovered and crystallized from alcohol. The following numbers are the melting points of the acid obtained from the various fractions of lead salt:

Fraction I.

1st Crystals from Alcohol	m. p. 155.75°
21 " " "	m. p. 155.6°
Fraction II	m. p. 154.°
Fraction III	m. p. 152.75°
Fraction IV	m. p. 152.6°

The plan had, therefore, proved no more successful than that in which the calcium salts had been similarly employed, the separation not being at all sharp. The next experiments were made with alcohol instead of water, but it was observed that the reaction between lead carbonate and salicylic acid is very sluggish in the presence of little water. It was, therefore, decided to form the lead salts with water as before, and then to add alcohol before crystallization commenced.

One hundred Gm. of salicylic acid were mixed with 97 Gm. of lead carbonate and 700 C.c. of water. The mixture was heated in a water bath for about half an hour, during which time it was constantly stirred. All action being over, 800 C.c. of alcohol (methylated spirit) were added. The liquid was then boiled and filtered from the basic salt which had separated. The filtrate crystallized as it cooled, and afforded a first fraction. This was filtered off and the liquid concentrated by distillation, when a second fraction was obtained, and by further concentration a third and fourth fraction. The melting points of the different specimens of acid were as follows:

Acid from Basic Salt.

1st Crystals from Alcohol	m. p. 156.75°
2d " " "	m. p. 156.°
3d " " "	m. p. 155.5°

Fraction I.

1st Crystals from Alcohol	m. p. 156.75°
2d " " "	m. p. 156.75°

Fraction II.

1st Crystals from Alcohol	m. p. 156.75°
2d " " "	m. p. 156.75°
Fraction III	m. p. 154.1°
Fraction IV	m. p. 151.8°

The separation in this case was perfectly satisfactory. Seventy-six per cent of the original substance had been recovered as pure salicylic acid in a single operation, the first two fractions of lead salt having yielded the pure acid.

The fourth fraction, representing about 6 per cent of the original substance, had yielded nearly pure para-cresotic acid. The fact that the second fraction, as well as the first, afforded pure salicylic acid, shows that somewhat less alcohol might have been added to the original liquid, when the first fraction would have been larger. In actual practice the first fraction may safely represent rather more than 75 per cent of the substance taken; but when much impurity is present, it is better to recrystallize this large fraction from dilute alcohol (25 vols. meth. spirit, 75 vols. water) instead of washing it on the filter, in order to completely remove the adhering mother liquid.

It is noteworthy that a considerable quantity of the basic salt is produced in this process.

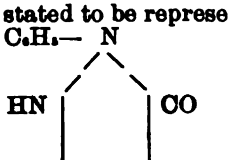
This may, however, be avoided by adding to the hot aqueous liquid, as soon as the action between the lead carbonate and salicylic acid is over, from 3 to 4 Gm. of strong acetic acid for each 100 Gm. of salicylic acid employed, and then continuing the heating for a short time. By this means, only a very small quantity of the basic lead salt is left insoluble. For the same reason, if it is necessary to recrystallize the first fraction of lead salt from dilute alcohol, acetic acid should be added to the liquid. By working in this manner, in a single operation 80 per cent of pure salicylic acid was obtained from an impure specimen melting at 153.75°.

The authors suggest that a "purified" salicylic acid should be demanded by the Pharmacopœia. This acid should be required to be in separate, well-defined, prismatic crystals, melting between 156.5° C. and 157° C., and from this purified acid the salicylates should be prepared. —After *Pharm. Journ.*, November 22d.

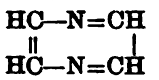
[*Note by Ed. Amer. Drugg.*—The authors acknowledge in a foot-note that the acid may appear in form of separate crystals and yet contain 2 per cent of para-cresotic acid. They want the requirement of "separate crystals" to be always fortified by the melting point, which should be as given above. It should, however, be remembered that the taking of melting points with any degree of accuracy, particularly where a few degrees more or less will make a great difference in the conclusions to be derived therefrom, is an operation requiring skill, experience, and accurate thermometers. Hence the verification of the melting points will not likely be a practicable requirement for the average pharmacist.]

Dehydro-methyl-phenyl-pyrazine.

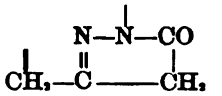
Dehydromethylphenylpyrazine is the systematic name attributed to the latest claimant for a place among the now numerous band of antipyretics, though the description given of its preparation leaves considerable doubt as to the correctness of this designation (*Pharm. Cent.*, November 6th, p. 663). The first stage in its preparation is stated to be the formation of phenylpyrazine by heating upon a water bath equivalent quantities of beta-bromo-, chloro-, or iodo-propionic acid and phenylhydrazine, dissolved in water, alcohol, or benzol, until free phenylhydrazine can no longer be detected, and separating by shaking with water. Phenylpyrazine, $C_9H_{10}N_2O$, is described as difficultly soluble in cold water and in benzol, somewhat more soluble in hot water, freely soluble in alcohol and chloroform, and as melting at 121° C. It is stated to be represented by the formula:



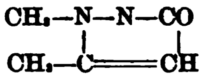
This compound is submitted to an oxidation process by agitating 20 parts dissolved in 500 parts of chloroform with 32 to 35 parts of dry mercuric oxide, which is said to result in the removal of two atoms of hydrogen from the fatty acid residue, CH_2—CH_2, and the formation of dehydrophenylpyrazine, which crystallizes out in flat needles melting at 154° C. Upon heating this product with methyl iodine and wood spirit to 100°, the so-called dehydromethylphenylpyrazine is obtained. It is described as possessing powerful basic properties, and occurring, when crystallized from chloroform, in large crystals, melting at 120° C., and readily soluble in water. With respect, however, to the statement quoted as to the formation of phenylpyrazine, it may be remarked that the general structural formula for the pyrazines is:



This differs from the formula given in being a six-membered ring, having the two atoms of N in the para position to one another, and containing no CO group. In a phenylpyrazine an atom of hydrogen in one of the CH groups would be replaced by C_6H_5. In fact, the alleged formula of phenylpyrazine is that of a phenyldihydropyrazolon, which is a compound that might be expected to be formed by the condensation of phenylhydrazine with iodo-propionic acid. The subsequent elimination of two atoms of hydrogen and the substitution of another by a methyl group would result in the formation of phenylmethylpyrazolon, a compound closely allied to antipyrin, which is phenyl-dimethyl-pyrazolon. A compound having the constitution of (1) phenyl- (3) methyl- (5) pyrazolon has been described by Knorr (*Annalen*, ccxxxviii., 147), who represents it by a formula that shows its close connection with antipyrin:



phenyl-methyl-pyrazolon.



phenyl-dimethyl-pyrazolon, or antipyrin.

—After *Pharm. Journal.*

Methylal as a Solvent.

Various volatile compounds have been recommended at different times as solvents for the extraction of the odorous principles of flowers, but none of these have displaced fats and hydrocarbons as used in the processes of maceration and enfleurage. The principal obstacles to their use have been the relatively high boiling point, which has not allowed of the recovery of the odorous principle unaltered, and the pertinacity with which minute quantities of the solvent adhere to the extracted substance. It is now stated that methylal affords a solvent free from these disadvantages, it having a relatively low boiling point (42° C.) and volatilizing readily and to the last trace (*Chem. Zeit.*, October 29th, p. 1474).

Practical experiments upon violet flowers are reported to have resulted satisfactorily, and it is expected that methylal will come into use for the purpose on an industrial scale.—*Pharm. Journ.*

[*Note by Ed. Am. Drugg.*—Methylal is a very volatile aromatic liquid, having the spec. grav. 0.860 at 20° C., boiling at 42° C. (107.6° F.), and soluble in 3 parts of water. It is prepared most economically by distilling a mixture of 2 parts of manganese dioxide and 2 parts of refined methylic alcohol with a mixture of 3 parts each of strong sulphuric acid and water.]

Composition of Soap-Stone.

As powdered talcum is often used by pharmacists as a medium for obtaining clear filtrates, it is well to know its composition. Properly speaking, it is a silicate of magnesium, but it generally contains iron and other impurities. F. W. Clarke and E. A. Schneider have recently examined some talcum with the following results. The sample of talc with which the experiments were carried out came from Hunter's Mill, Virginia, and when dried in air gave the following analysis:

	Per cent.
Silica	62.27
Alumina	0.15
Ferric Oxide	0.95
Magnesia	30.95
Ferrous Oxide	0.85
Manganous Oxide	Trace
Water (loss at 105°)	0.07
Loss on ignition	4.84
	100.08

These figures agree closely with the empirical formula $H_2Mg_3Si_4O_{12}$.

Talc is usually held to be an acid metasilicate, $H_2Mg_3(SiO_3)_4$. Groth, however, prefers to consider it as a basic pyrosilicate, $Mg(Si_2O_5)_2(MgOH)_2$, derived from the acid $H_2Si_2O_5$. Olivine behaves like talc to hydrochloric acid gas, being only superficially attacked; but talc is the only one of these minerals that withstands the action of aqueous hydrochloric acid. This power of talc for resisting the action of hydrochloric acid is a strong argument against considering it to be a basic pyrosilicate.—After *Berichte* and *Journ. Soc. Chem. Ind.*

[In commercial parlance the name *talc* is commonly used for mica.—Ed.]

The Best Way to Cover the somewhat strong and disagreeable odor of naphtalin is to sublime it together with a little gum benzoin or benzoic acid. The desired effect is produced by simply mixing the two substances together.

NOTES ON NOVELTIES.

Picrate of Veratrine.

Veratrine forms only a few crystalline salts, according to Felix B. Ahrens (*Berichte*, 1890, 2700). One is the double chloride of gold and veratrine, $C_{32}H_{49}NO_9$.-HCl.$AuCl_3$; another is the corresponding mercury salt, and the third is the picrate, $C_{32}H_{49}NO_9.C_6H_2(NO_2)_3OH$. The last named is prepared by adding aqueous solution of picric acid to an alcoholic solution of hydrochlorate of veratrine (which latter salt does *not* crystallize). The picrate then separates gradually in crystals which are very permanent, insoluble in water, but easily soluble in alcohol.

Larixolin.

A German patent has been issued for a compound named larixolin, which is alleged to be a perfect imitation of French oil of turpentine (*Pharm. Centr.*, Nov. 6th, p. 669). It is described as consisting of a mixture in definite proportions of petroleum and camphor oil, and is alleged to not only have nearly exactly the same odor as oil of terpentine, but to be a mixture of hydrocarbons of the turpene series almost identical with the terebinthine of French oil of turpentine. Its specific gravity at 15° C. is given at 0.8535 as compared with 0.8660, and its igniting point at 55° C. as compared with 45 C. for French oil of turpentine. Larixolin is said to be applicable for all the purposes for which turpentine oil is used.—*Pharm. Journ.*

Iodo-Carvacrol.

When carvacrol is subjected to the same treatment as its isomer thymol is in the preparation of aristol (*Pharm. Journ.* [3], xx., 601), an iodine substitution product is obtained resembling in its general characters the iodine derivatives of phenols, and said to be likely to find a place in the materia medica (*Chem. Zeit.*, October 4th, p. 1355).

A dilute solution of 1.5 parts of carvacrol in 1.6 parts of soda is heated with 10.16 parts of iodine and 10.16 parts of potassium iodide, and made alkaline, when a yellow precipitate forms that is separated and washed with water. The new compound is described as occurring in the form of a yellow-brown powder which is insoluble in water, difficultly soluble in alcohol, and easily soluble in ether, chloroform, and olive oil. It is unaltered by light, and when heated in a capillary tube softens at 50° C., and melts at about 90° C. to a brown liquid.—*Pharm. Journ.*

Citral.

This name was proposed in 1888 by Schimmel & Co. to denote the principal odorous constituent of oil of lemon. Since that time the above firm have perfected the method of isolating it, and have now put the article on the market.

Citral boils at a reduced pressure of 16 Mm. at 116° C.; at the ordinary pressure it boils at 228°-229° C., and, if it is pure, does not decompose at this temperature. It is an aldehyde, forming solid compounds with bisulphites. It probably has the formula $C_{10}H_{16}O$.

Oil of lemon contains on an average 7½ per cent of citral. Hence 75 Gm. of it are equivalent to 1 kilo of the oil. Yet it must be acknowledged that citral lacks somewhat of the "freshness" of the aroma which good oil of lemon possesses. On the other hand, it is so very much more soluble in dilute alcoholic liquids that its use will certainly become general. In order to combine both the ready solubility of the citral and the fresh aroma of the oil, it is proposed to mix 75 Gm. of citral with 1 kilo of the oil, and to regard this equivalent to 2 kilos of oil, of which a proportionate quantity is then taken. According to Schimmel & Co., 15 Gm. of this mixture are sufficient to prepare 100 liters (about 26½ gallons) of a lemon spirit of fine aroma, and perfectly clear even if it contains but little alcohol.—Schimmel & Co.'s October *Berichte.*

Iodoform Substitute.

At the last meeting of the Society of Therapeutics, Pharmacist Yvon said, after numerous trials for devising an iodoform substitute, odorless and easily prepared, he fixes upon cinchonine iodosulphate, a combination obtained when the alkaloid sulphate is thrown down with Bouchardat's reagent—that is, iodized potassium iodide. Cinchonine was selected owing to its comparatively low price. As to the iodine combination, it is one of a class well known since Herapath's remarkable works. The iodosulphate may be obtained as follows:

1. Sulphate of Cinchonine	1 gramme.
Water	80 grammes.

Dissolve.

2. Iodine	1 gramme.
Potassium Iodide	10 grammes.
Water	1,000 "

The second solution is to be added to the first, but an excess must be carefully avoided. The chocolate-brown precipitate produced is to be collected on a filter, washed until it contains no free iodine, and lastly dried in open air. The result is an odorless, light, impalpable powder, insoluble in water, soluble in alcohol and ether. It contains 50 per cent of iodine, and so far has proved very satisfactory in clinical practice. As an antiseptic it is in no way inferior to iodoform. From a pharmaceutical standpoint it presents the advantage of being easily and inexpensively prepared. — Paris Correspondent of *Chem. and Drug.*

Euphorin, or Phenylurethane.

This is the name under which the firm of Dr. J. von Heyden is introducing the compound phenylurethane, $CO.OC_2H_5NHC_6H_5$, which was first discovered by Professor Giacosa, of Turin. Henceforth it will be known as "euphorin." It is said to possess antithermic, antirheumatic, analgesic, and antiseptic properties.—*Chem. and Drugg.*

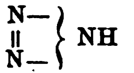
Following a practice that has now become frequent, although in the present instance with less than the usual excuse, the trivial name euphorin has been bestowed upon the synthetic compound introduced a short time since as phenylurethane (*Pharm. Journ.* [3], xx., 501). This compound, which is represented by the formula

$CO\begin{cases} OC_2H_5 \\ NH\,(C_6H_5) \end{cases}$, it may be recalled, is said to be produced by the action of chlorocarbonic ethyl ester upon aniline, and to occur as a white crystalline powder, with a faintly aromatic odor and a scarcely perceptible taste, that subsequently becomes more acrid and somewhat clove-like. It is very slightly soluble in cold water, very freely soluble in alcohol, and sufficiently soluble in mixtures of alcohol and water, such as white wine, to be given in solution in such menstrua.

According to Sausoni (*Pharm. Centr.*, October 9th, p. 616), the urine after the administration of euphorin shows the ρ-amidophenol reaction, either directly or after the distillation of the urine made alkaline by potassium carbonate. Neither phenol nor aniline occurs in the urine, and albumin and sugar are not met with, but probably the secretion of urea is increased.—*Pharm. Journ.*

Azoimid.

Azoimid, a new compound of nitrogen and hydrogen, has been discovered recently by Th. Curtius. This is a most remarkable body, having the properties of an acid, and behaving, in many respects, like hydrochloric acid. Its composition is N_3H, and its constitution may be expressed by the graphic formula:



$$\left.\begin{matrix} N- \\ \| \\ N- \end{matrix}\right\} NH$$

As may be surmised from its composition, it is not a safe article to work with. Indeed, from the statements of the discoverer, it appears to be a most dangerously explosive compound, except perhaps when highly diluted.

The compound is a gas of a most peculiar, "frightfully pungent" odor. Even when highly diluted it causes dizziness and headache, and at the same time produces a violent inflammation of the mucous membrane of the nostrils. Its aqueous solution, when applied to the epidermis, produces sharp pain. It forms salts which closely resemble chlorides. Thus, the silver salt has the constitution N_3Ag, silver nitride or ternitride; the mercurous salt, $(NH_3)_2Hg_2$, mercurous nitride, or "nitrogen calomel."

The gas is readily absorbed by water. If the aqueous solution is distilled, some of the gas is at first expelled, afterwards a very concentrated, aqueous acid distils over.

The danger connected with handling the new compound and its combinations is illustrated by the fact that 2 C.c. of a 27-per-cent aqueous solution of azoimid contained in a capillary tube exploded, when the tube was about to be closed by fusion, under "frightful detonation and conversion of the thick-walled glass tube into dust." The detonation produced by a few milligrammes of the silver or mercury compound, when heated or struck, is "without parallel" and extraordinarily "quick." The mercury salt explodes in the dark with a brilliantly blue light, that of silver with a green light, and the explosion affords a magnificent sight.

The compounds of azoimid with the alkalies and alkaline earths are not so violently explosive. The barium salt, N_6Ba, which deflagrates quickly with green light when ignited, could be subjected to ultimate analysis (with cupric oxide) without difficulty.

The new compound was produced in the following manner. By the action of hydrazin upon a benzoylglycolic ether (*f. i.*, ethyl-benzoyl-glycolate), there is produced benzoylhydrazin and amidoglycol. Hydrazin has the composition N_2H_4, and benzoylhydrazin is $C_6H_5CO.$-$NH.NH_2$. By the action of nitrous acid (derived from nitrite of sodium by means of acetic acid), the nitrous group is taken up by the benzoylhydrazin and water separated, thus:

$$\underset{\text{benzoylhydrazin}}{C_6H_5.CO.NH.NH_2} + \underset{\text{nitrous acid}}{HNO_2} = \underset{\text{benzoyl-azoimid}}{C_6H_5.CO.N\left\{\begin{matrix}N\\N\end{matrix}\right.} + \underset{\text{water}}{2H_2O}$$

The benzoyl-azoimid, when boiled with solution of soda, splits up as follows:

$$C_6H_5.CO.N_3 + \underset{\text{soda}}{2NaOH} = \underset{\text{sodium benzoate}}{C_6H_5.COONa} + \underset{\text{sodium nitride}}{NaN_3}$$

And the last-named body, when acidulated, produces azoimid, HN_3.—After *Berichte*, 1890, 3023.

The Pharmacy of Exalgine.

AT a recent meeting of the Pharmaceutical Society Mr. Peter Boa read the following paper (*Pharm. Journ.*, November 29th):

Exalgine is now frequently prescribed, sometimes in powders, rarely in pills, most frequently in mixtures. When ordered in the form of a mixture, it is nearly always accompanied by a little alcohol in some form or other, such as brandy, rum, alcohol, or an aromatic tincture, with the object of insuring its solution. It frequently happens that the spirit specified in the prescription is insufficient to keep it in solution unless certain precautions be observed.

The solubility of exalgine in water is stated by Martindale in the "Extra Pharmacopœia" to be 1 in 60. For practical purposes this may be accepted. I find that 1 part dissolves in 50 of cold water, but it requires six hours and frequent shaking to effect this. The substance is volatile, and its solubility cannot conveniently be determined by evaporating to dryness a saturated solution. It is readily soluble in warm water, and this property may be utilized in dispensing, as I shall presently show.

The following mixture is the favorite form of a local prescriber:

Exalgine	ʒ ss
Alcohol	ʒ ij.
Aquæ	ad fl. ℥ iss.

If the exalgine be dissolved in the spirit and the water then added, it falls out of solution. On the other hand, if the exalgine be dissolved in water by the aid of heat, and the spirit added last, a clear and permanent solution results.

Another mixture by a different prescriber is:

Exalgine	gr. ij.
Alcohol	ʒ ss.
Syr. Aurantii	ʒ iij.
Aquæ	ad fl. ℥ ij.

The spirit here is insufficient to dissolve the exalgine, and, although there is great excess of water beyond the saturation point, I have seen this mixture with a "shake the bottle" on it—an excusable circumstance, because solution would only be effected after some hours in the cold.

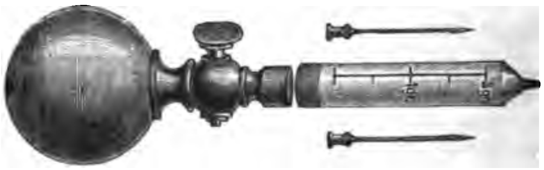
The following mixture presents no difficulty at what may be called a comfortable temperature:

Exalgine	gr. xij.
Alcohol	ʒ i.
Aquæ	ad fl. ℥ ij.

If the exalgine be dissolved in the spirit and the water added, a clear mixture is formed. It was prepared on one occasion at a temperature of 46° F., and separation took place. The water had been added gradually; when added all at once, no separation ensued.

Alcohol has a useful effect in keeping exalgine in solution. For example, I dissolved 16 grains in 1 fluidounce of water by heat, and allowed the solution to cool; a copious recrystallization took place. To an ounce of another solution of similar strength, while warm, ʒ ss. of alcohol was added. The solution was permanent. To obtain the best effect from the alcohol, it should not be used to dissolve the exalgine, but added after solution has been effected in the water by heat. The little heat that is required does not appear to change the substance. I compared the crystals obtained from a solution in hot water with the original crystals, and no difference was discernible.

The dose of exalgine generally prescribed is small—usually 1 or 2 grains—and it is not necessary to give it with a deluge of water. When asked to suggest a vehicle, I should say Tinct. Cardam. Co.; it insures solution, covers the taste, and does not possess any therapeutic properties of its own beyond being a pleasant aromatic.



Koch's Syringe for Hypodermic Injections, an illustration of which we present herewith, is likely to be in demand, not only for the use of his anti-tubercular treatment, but in other conditions for which hypodermic medication is indicated. It has the advantage over the piston syringe of being capable of absolute cleanliness. The solutions used come into contact only with the glass measuring tube and the metallic needle, and these can readily be rendered aseptic with heat and absolute alcohol. Instead of a piston, a rubber ball furnishes the means for expelling the solution, and a stopcock prevents any pressure upon the contents until everything is adjusted and ready for the injection. The surgical-instrument manufacturers throughout the country are prepared to supply the demand, the price at present being about $3.50. The syringe sells in Germany for about $1.50. It will probably come to be sold here for about $1 after the novelty wears off.

◆

"Hay Fever," said the Moderator at the Influenza Convention, "may be likened to a tie vote."

"Hear, hear!" cried the audience.

"The eyes and nose both appear to have it."

"Would any shock, at this stage of my trouble, cause a relapse, doctor?" inquired the patient. "Yes, and a serious one." "Please then, doctor, to remember that important fact in making out your bill."

THE

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EDITORIAL.

A Practical Method for Staining Tubercle Bacilli.

SINCE the examination of sputum derived from tubercular patients will no doubt become a universal necessity, a new field is offered to the progressive pharmacist for aiding the physician in his labors. Of course, many of the latter will attend to these examinations themselves, or have them made by younger members of their own profession whose time hangs more heavily on their hands. Yet there are many busy practitioners who have no such assistance. If they can find a pharmacist who is sufficiently expert with the microscope to make such examinations, they will surely employ his services. That this is the case in some parts of Europe, notably Germany, is a fact generally known. Assuming for the present that a practical process for staining and mounting tubercle bacilli will be acceptable to those of our readers who are already in possession of, and familiar with, a microscope, we will quote here a method of proceeding recently published by Dr. M. Friendlaender, of Berlin (in *Pharm. Zeit.*, November 22d). This method permits two mountings to be made in from five to ten minutes, provided the operator is skilled and has everything in readiness.

The materials required are :

1. **Ziehl's Solution.**—This is a 5-per-cent aqueous solution of carbolic acid mixed with alcoholic solution of fuchsin (almost saturated).
2. A mixture of 100 Gm. of alcohol of 80-per-cent and of 5 Gm. of pure nitric acid.
3. A concentrated solution of methylene blue in water.

The mounting is done as follows:

A very small quantity of the sputum—about the size of the head of a pin—is taken up with the needle and spread by means of the latter upon an object-glass to a thin layer about covering the space of a ten-cent piece. The slide is then allowed to dry in the air, and meanwhile a second slide is commenced. The dry mounting is now drawn three times slowly through the flame of a Bunsen burner or alcohol lamp. Next 2 to 3 drops of the fuchsin solution are placed upon the mounting, and the slide held over the flame (mounting upward) until light vapors arise. The slide is now drawn once through water contained in a capsule, and the mounting then treated with a few drops of the acidulated alcohol, which is allowed to remain until the spot is completely decolorized (this will require about one-half minute). The slide is now again washed with water and then treated with a few drops of the methylene-blue solution, which is allowed to remain until the second slide (to which the operator now turns) has progressed to the same point. The first slide is now washed with water and finally dried with blotting paper [this is not advisable unless paper giving off no fibres is at hand] and over the flame.

Upon the mounting there is now placed a drop of oil of cedar (no cover glass), and the object examined with the lens (oil immersion objective).

Usually two specimens or slides suffice for determining the character of a sputum.

THE attention of readers in South Carolina is asked to the communication on page 31 from the Entomologist of the U. S. Department of Agriculture. This department of the government has for some time devoted much attention to the introduction of silkworm raising and the production of silk in this country, and this industry has already been the means of increasing the income acquired by many farmers' wives and daughters. The food supplied to these ravenous caterpillars is a matter of primary importance, and must greatly influence the profitable results of the undertaking. We hope that our readers will promptly inform Mr. Riley of any knowledge they may have of the matter he refers to.

◆

Tobacco Smoke passed through cotton wool charged with pyrogallic acid is said to be freed from nicotine.

Palatable Castor-Oil Mixture.—In the following preparation of castor oil the disagreeable taste of the oil is replaced by a pleasant flavor of almonds :

℞	Castor Oil	30 parts.
	Bitter Almonds	2 "
	Sugar	30 "
	Gum Tragacanth	½ part.
	Orangeflower Water	10 parts.
	Water	120 "

Mix.

The only drawback to this mixture is that it requires a good deal of it for a dose, a teaspoonful of the oil being contained in about five teaspoonfuls of the mixture.

Observations on Sunburn.—Sunburn on the snow has been the subject of an interesting investigation by Dr. Robert L. Bowles. Alpine climbers concede the curious fact that sun on snow burns more quickly than on rocks or in heated valleys at a low elevation, and Dr. Bowles remarks that sunlight reflected from freshly fallen snow acts much more energetically on the skin than that reflected from older snow. Dr. Bowles one brilliant day painted his face brown, and ascended the Gorner Grat, where there was much snow. There were about eighty others making the ascent. In the evening all excepting Dr. Bowles were smarting from the effects of sunburn. He points out that in Morocco, and all along the north of Africa, the inhabitants blacken themselves round the eyes to avert ophthalmia from the glare of the hot sand. In Fiji the natives abandon their red and white stripes when they go fishing on the reef in the full glare of the sun, and blacken their faces. In the Sikkim hills, also, the natives blacken themselves round the eyes as a protection from the glare of the sun on newly fallen snow. Dr. Bowles concludes that heat is not the direct cause of sunburn, but that it is probably caused by the violet or ultra-violet rays of light which are reflected from the snow.

French Smokeless Sporting Powder.

For some years past French Government factories have been supplying dealers with a smokeless powder intended for sporting guns. The composition of the article has recently been improved, and an official publication has set forth interesting particulars on the subject. The new formula is as follows:

Soluble Guncotton	28 parts.
Insoluble Guncotton	37 "
Barium Nitrate	29 "
Potassium Nitrate	6 "

The mixture is first ground while in the wet state, granulated, and dried. Next it is made into a paste with ether, granulated again, and, after drying, the grains are polished in a revolving drum under a spray of ether. After proper sifting and dusting the finished product appears in the shape of a slightly yellow granulated powder, shining, hard, and not hygrometric. The number of grains to the gramme ranges from 2,150 to 2,300. Estimated in volumes, the density of the smokeless powder is about half that of the ordinary black sporting article. It may be used for sporting guns in the same manner and the same measure by volume as common powder.

Such are the official accounts. Gun and powder dealers disagree with them on some points. They admit the perfect smokelessness, light weight, and grain uniformity of the product; but they say that since the Government sells it at twice the price of the old powder—viz., 28 f. against 15 f. a kilogramme—it costs as much in the end. And, worse, they say it is apt to burst gun barrels in very dry weather.

It is but fair to add, some doubt remains as to whether the last statement applies to the old or new improved type of powder, and it is hardly necessary to remark that the smokeless sporting powder is not the smokeless army powder.—Paris Corresp. of *Chem. and Drugg.*

Japanese and Newfoundland Cod-Liver Oil in England.

In 1882 Japanese cod-liver oil was first seen on the London market, and at first it attracted attention and sold at about half the price of the best Norwegian oil, which was just then very scarce.

But soon afterwards, when the Norwegian oil became more plentiful, the Japanese article receded into the background, and its importation no longer paid and was therefore relinquished. Newfoundland oil is also occasionally seen in the English markets, and the low values of cod-liver oil generally during the last few seasons are probably the only reason that it is not imported on a larger scale.—*Chem. and Drugg. Diary.*

Poisoning by Sulphonal.

A case is recorded in the *British Medical Journal* (October 25th, p. 905) in which apparently more than an ounce of sulphonal had been taken to induce sleep. The patient died after remaining in a state of stupor, deepening into insensibility and anæsthesia, during three days.

After the evening of the first day there was total suppression of urine, a state which nature evidently made an effort to counterbalance by the production of a profuse perspiration. This appears to be the first case on record of death from an overdose of the drug.—*Pharm. Journ.*

Esterhasy Bouquet.

A favorite perfume has been named after the famous Hungarian prince, which has the following composition:

Calamus	1 ounce.
Cloves	1 "
Nutmeg	1 "
[Deodorized] Alcohol	50 ounces.

Macerate four or five days, filter, and add—

Oil of Lemon	1 ounce.
Essence of Musk	2 ounces.
Essence of Ambergris	4 "
Oil of Bitter Almond	8 drops.
Oil Neroli	16 "
Oil of Rose	88 "
Solution of Ammonia	8 "

Mix. —*Chem. and Drugg.*

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The Medical Bulletin's Visiting List, or, Physician's Call Record. Arranged upon an Original and Convenient Monthly and Weekly Plan for the Daily Recording of Professional Visits. New Edition. Philadelphia and London: F. A. Davis, Publisher, 1890. $1.25.

Besides twenty-three pages of useful tables and information which may be required in emergencies, this pocket-book contains a novel feature in its arrangement of the call list. For each broad page there are four narrow pages interleaved, so that one entry of a patient's name serves for reference to visits made during an entire month. Each of the large pages will accommodate thirty-four names; and as there are twenty-four leaves, there is provision for sixty-eight individual patients in each month—quite enough for a large business. The usual pages for recording obstetrical, vaccinated, and fatal cases, and for addresses and financial matters, are provided.

The Medical Student's Manual of Chemistry. By R. A. Witthaus, A.M., M.D., Professor of Chemistry and Physics in the University of the City of New York; Professor of Chemistry and Toxicology in the University of Vermont; Member of the Chemical Societies of Paris and Berlin; Member of the American Chemical Society; Fellow of the American Academy of Medicine, of the New York Academy of Medicine, of the American Association for the Advancement of Science, etc. Third Edition. New York: William Wood & Company, 1890.

"The arrangement and classification followed in previous editions have been continued.

"Those portions of the work dealing with chemical physics and with mineral chemistry have been extended in the light of discoveries announced since the appearance of the second edition.

"The orthography of certain words—as chlorin, chlorids—has been modified in accordance with the views expressed in the report of the committee of the Chemical Section of the American Association for the Advancement of Science.

"That portion of the work treating of the chemistry of the carbon compounds has been much extended and in great part rewritten. The prominence given to this branch of the subject the author believes to be justified, notwithstanding its intricacy and the consequent difficulty of teaching it satisfactorily to medical students, by reason of the intimate connection of organic chemistry with physiology and with modern pharmacy, and the rapidly increasing use of complex organic products, natural and synthetic, as medicines."

Additions Made in 1890 to the British Pharmacopœia of 1885. Published under the direction of the General Council of Medical Education and Registration of the United Kingdom, Pursuant to the Acts XXI. and XXII. Victoria, Cap. XC. (1858), and XXV. and XXVI. Victoria, Cap. XCI. (1862). Printed and published for the Medical Council by Spottiswoode & Co., Gracechurch Street, London, 1890. Pp. 35, 8vo. One shilling.

The aid of a committee of the Pharmaceutical Society of Great Britain was secured for this supplement, and Professor Attfield has edited it. The forty-four additions embrace a number of proprietary articles, the policy pursued in Great Britain in this respect being contrary to that which exists in the case of the Pharmacopœia of this country.

* * *

To Detect Fecal Matter in Drinking Water, Griess recommends a feebly alkaline solution of para-diazo-benzol-sulphuric acid, which, with water contaminated as indicated, will produce a yellow discoloration within five minutes. Try it on the old well next summer.

Two Drops of Creosote made from beech tar, given with a little water, are said to be a specific for hiccough arising from drunkenness.

CORRESPONDENCE.

RAMIE AS FOOD FOR SILKWORMS.

EDITOR OF THE AMERICAN DRUGGIST.

SIR:—I have noticed a newspaper clipping referring to the statement in your journal of the fact that a lady of Columbus, S. C., reared a brood of young silkworms on ramie leaves, for the reason that the worms hatched before the mulberry or osage orange had put forth leaves. It was stated that the worms fed ravenously and were kept upon this diet until the osage orange leaves appeared. The worms were said to have been divided equally, one set being fed with ramie and the other with osage orange leaves, with the result that the former produced larger cocoons and a finer quality of silk.

I wish very much to investigate the truth of this statement, as the discovery is a valuable one, if valid. In spite of the fact that ramie is, botanically speaking, closely related to the mulberry, I am inclined to be incredulous as to the truth of the report. If you can assist me by giving this question circulation, or if any of your correspondents are familiar with the actual facts in the case, I shall be very glad to hear from them.

Yours very truly,
C. V. RILEY, *Entomologist*.

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF ENTOMOLOGY,
WASHINGTON, D. C., Dec. 23d, 1890.

MEDICINAL HONEY.

IN the conclusion of a recent letter from Mr. Thomas Christy, of the well-known London house of Thomas Christy & Co., 25 Lime street, regarding a recent discussion of the medicinal value of eucalyptus honey which was held by the Pharmaceutical Society, the writer says:

"Now, what I want your readers to help me with is the following: In a mighty continent like America, bees must feed at certain seasons on flowers or on trees yielding manna, and I am anxious to learn if they know of any honey being collected with a belief that, owing to the bees feeding on certain plants, the honey contains any special properties.

"Mr. Mason, the London partner of Messrs. Seabury, of New York, took a most practical view when he reminded members that any one accustomed to purchase honey knows at once its origin by the flavor. He added that when he was in California he tasted fresh honey from the comb with a strong flavor of orange flowers. So, surely, there must be some properties in honey, although science has not yet discovered a means for detecting an active principle."

If any of our readers can give Mr. Christy information on this subject, it will be greatly appreciated.

NOTES FROM ENGLAND.

(*From our own Correspondent.*)

LONDON, December 20th, 1890.

The attention of British pharmacists is just now divided between two subjects, each of which is of considerable importance to the craft. Chronologically considered, the Pharmacy Acts Amendment Bill comes first, although it has not yet been introduced into Parliament. It emanates from the Pharmaceutical Society of Great Britain, which represents about one-third of the entire body of chemists, and which enjoys the double capacity of being the only examining body for pharmacists as well as being a teaching corporation. On several occasions the council of the society have framed measures for the furtherance of the interests of pharmacy, but have been unsuccessful in carrying them out, as the majority of the trade are suspicious or inert. The present bill seems to have more chance, as, through the active efforts of the President, Mr. Carteighe, its chief provisions have been explained and the objections battled with at meetings of the trade held at nearly all the principal towns throughout the kingdom. Something like unity in action and concerted combination appears possible. The chief provisions are: The enforcement of a curriculum at a recognized school of pharmacy for all would-be pharmacists; the restriction of the dispensing of all prescriptions to qualified chemists, without, however, interfering with the rights of doctors and veterinary surgeons; the exemption of all chemists from jury service (pharmaceutical chemists alone enjoying the privilege at present).

It is apparent that there are some solid advantages to be derived from such a measure becoming law, and the chief objections are based upon the fact that the bill does not go far enough. The opponents desire to restrict the sale of all drugs to chemists, and not satisfied with that large order, insist on attempting to break up those gigantic monopolies—the stores. The arguments for and against will be considered in my next letter.

The second subject is the publication of the Addendum to the British Pharmacopœia. This is of special interest, as for the first time pharmacists have been officially appointed to assist the General Medical Council in producing this work. This will appear strange to American druggists, who have so long had an important share in the compilation of the national pharmacopœia. Readers of the AMERICAN DRUGGIST will no doubt have an early opportunity of judging the value of these forty-four additions to the British Pharmacopœia. At the commencement of the little book will be found the names of the pharmaceutical chemists appointed by the Pharmaceutical Society to do all constructive work after the Medical Council had decided upon the various drugs. These were: Messrs. Carteighe, Clark, Ekin, Gale, Greenish, Martin, Martindale, and Umney. A word or two about these pharmacists may be of interest. **MICHAEL CARTEIGHE**, F.I.C., F.C.S., has been described as "the perpetual president of the Society," he having held this position for the last nine years. He is the principal of the old-established firm, Dinneford & Co., of New Bond street, London. The firm are well known everywhere for their "fluid magnesia," which has an immense sale. He has an enormous capacity for work, and much of the present high position of the Society is due to him.

DR. CLARK, D.Sc., F.C.S., is a partner in the firm of Duncan, Flockhart & Co., of Edinburgh. He is also an Examiner of the Pharmaceutical Society in Edinburgh, and has contributed several papers to the *Journal*. He is a firm disciple of Dr. Squibb's method of preparing fluid extracts by repercolation.

CHARLES EKIN, F.I.C., F.C.S., is one of the partners in the historic house of Savory & Moore. This firm's specialties are known through Messrs. E. Fougera & Co., of New York. He was for several years an Examiner of the Society.

H. G. GREENISH, F.I.C., is the recently appointed lecturer on Materia Medica at the Society's school. He is well known as the translator of G. Dragendorff's "Plant Analysis," and was one of his pupils at Dorpat.

N. H. MARTIN, F.L.S., is a member of Council of the Society, and a partner in the firm of Brady & Martin, Newcastle-on-Tyne.

W. MARTINDALE, F.C.S., is also a member of Council, and late Examiner of the Society. He is President-elect of the British Pharmaceutical Conference, which holds a similar position to the A. P. A. He has a great reputation as author of "The Extra Pharmacopœia," which has gone through six editions of 6,000 each since 1882.

C. UMNEY, F.I.C., F.C.S., is a partner in the wholesale firm of Wright, Layman & Umney. Last year he presided over the B. P. C.

It should be added, that this conjoint arrangement of pharmacists and physicians in compiling the additions was due to Professor John Attfield, F.R.S., who is an editor of the B. P., and professor of chemistry to the Society.

The growth of popularity in compressed drugs in England has been wonderfully rapid during the last few years. Introduced first by Messrs. Burroughs, Wellcome & Co., as agents for Wyeth Bros., their manufacture is now undertaken by most of the wholesale houses. Several names have been coined for the purpose of distinguishing different firms' products. Thus B., W. & Co. call theirs tabloids, whilst pilloids, tabellæ, tablets, and pellets are all names for the same article.

Another innovation hailing from the States, and which has come largely into favor, is the preparation of very small pills. This is due, no doubt, to Messrs. W. R. Warner & Co. in a great measure. A favorite formula here is:

Aloin	$\frac{1}{8}$ gr.
Ext. Bellad. Rad	$\frac{1}{20}$ "
Podophyllin	$\frac{1}{8}$ "
Jalapine	$\frac{1}{8}$ "
Ext. Hyoscy	$\frac{1}{20}$ "
Ex. Nux. Vom	$\frac{1}{16}$ "
Capsicine	$\frac{1}{20}$ "

Ft. pil i.

One of the latest improvements in manufacture has resulted in the introduction of chloroform made from pure acetone. This has been in full swing in America for four or five years, I believe, but has only recently been started here. The chloroform is made at Warrington, and the sole agent in London is Mr. A. H. Mason, a partner in Seabury & Johnson's London house. It has already reduced the price to 28 cents, whereas the cheapest obtainable before was from methylated spirit, and charged 44 cents per pound, whilst that from pure alcohol is $1.04.

LONDON MARKET REPORT.

MINCING LANE, December 20th, 1890.

THE closing month in the year is always quiet, and sales have been very small during the last two or three weeks, although money is easier. Heavy chemicals are very firm, whilst at the cinchona sales last week 3,220 bales were offered, and 2,390 changed hands. The unit was raised one-eighth, and prices were well maintained. Oils have been dull, but cod-liver is higher, and slight increases have been made in cotton and linseed. Saffron is low, but will probably rise next month. Shellac shows some slight improvement.

The following are current prices:

Acid, carbolic	per lb.,	$0.16	Pimento	per lb.,	$0.05–$0.06
citric	"	.32	Oil, castor	per lb.,	.08
oxalic	"	.08	cotton	per cwt.,	4.20
tartaric	"	.30	linseed	"	6.01
Bleaching powd.,	per cwt.,	1.50	olive	"	8.20
Camphor, crude	per lb.,	.85	turpentine	"	7.90
refined	"	.38–.42	petroleum	per gal.,	.11
Cinchona, Ceylon,	"	.10–.16	Potash, bichrom	per lb.,	.07½
E. Indian	"	.04–.16	chlorate	"	.11
Java	"	.06–.12	nitrate	per cwt.,	4.45
S. America	"	.14–.21	Quinine, Aug	per oz.,	.28
Copper sulphate	per cwt.,	4.30	Germ	"	.23
Cream of tartar	per lb.,	.20	Shellac, TN	per cwt.,	20.10
Cloves	"	.07	garnet	"	19.70
Cinnamon	"	.12	button	"	21.30
Jalap	"	.42	Soda, caustic, 70°	"	2.80
Mercury	"	.50	crystal	"	.84
Calomel	"	.80	bicarbonate	"	1.72
Corrosive sub.	"	.64	Stick-lac	per cwt.,	16.40–17.70

KANSAS CITY (MO.) ITEMS.

Kansas City has 190 drug stores.

Two hundred and seventy drug clerks in Kansas City.

All the druggists carrying holiday goods report a splendid trade.

GEORGE HASHINGER has opened a new stock of drugs at 2808 Rochester street.

The "Gem Drug Store" has been assigned to **MEYER BROS'. DRUG CO.**

J. R. BRINKLEY is with L. C. Roy at 12th and Locust Streets.

BROWN & ROBERTS succeed Ed. Marty at Ninth and Wyandotte streets.

MATT REILLY now "supports a handsome pharmacy" at 13th and Summit streets.

ED. M. VANDERPOOL dispenses drugs at the "end" of the Troost Cable.

D. M. CLARCK has removed his stock of drugs from 24th and Belleview to 12th and Harrison.

JAS. TAYLOR, formerly with **ED. MARTY**, is now at the Post Office Drug Store, Ninth and Walnut.

H. M. GARLICHS, of St. Joseph, paid Kansas City a visit the first of the month, with the view of investing, we understand.

THE MEYER BROS'. DRUG CO. did not carry their usual stock for holiday trade this year. Many retail druggists are following their example.

O'REILLY BROS. have moved their stock from Ninth and Charlotte to the corner room in the Warder Grand Theatre Building.

A heavy snow on the 24th made superb sleighing, and great sales that eve for dealers in articles that Santa Claus makes.

CHARLES W. PARKER, formerly in laboratory of Meyer Bros. Drug Co., is now attending the University Medical College.

J. H. MILLER now dispenses to the poor at the City Hospital. He is a senior student of the Kansas City College of Pharmacy.

There are two lady pharmacists in Kansas City. They are **MISS SUSIE HOLZINGER** and **MISS LOTTA MOSES**. Both are students at the College of Pharmacy.

HENRY M. ECTON, who was formerly at Geo. Eysell's drug store, is now in the drug business at Liberty, Mo.

FRANK EDIL, who was pharmacist for the Brown Mfg. Co., is now with E. J. Humphrey, Ninth and Delaware, Leavenworth, Kan.

LESLIE JOY, PH.G., graduate of the Kansas City College of Pharmacy, is now proprietor of the drug store at 15th and Grand avenue.

DR. E. R. LEWIS has just returned from Charleston, S. C., where he has been attending the American Health Association. Our able city physician has secured the next meeting of the Association for Kansas City.

The announcement of the State Board of Pharmacy is creating a sensation among the druggists. They must all have registered clerks by January 10th, or place themselves liable to prosecution.

HACKETT & CAREY have opened a new stock of drugs, with costly fixtures, at 14th and Summit streets. Mr. Carey has many acquaintances in that locality. He was formerly with Riddle Bros.

There are no cut rates in Kansas City. Prices are controlled by the Kansas City Pharmaceutical Association, of which J. A. Gallagher is president and C. C. Griesick secretary. The association meets once a month.

DR. CLAUDE C. HAMILTON, Demonstrator of Chemistry in the Kansas City College of Pharmacy, the University Medical College, and Western Dental College, was married December 1st to Miss Alva R. McKinnon, of Lathrop, Mo.

The Kansas City College of Pharmacy has 54 students enrolled for this term. The faculty justly deserve the wide reputation they have won for their college, which is one of the best in the land.

BEN. C. HOWARD, PH.G., is a graduate of the Kansas City College of Pharmacy, and now the chemist for the Fort Worth (Texas) Cement Co. We miss his face among the many pleasant ones at Woodward, Faxon & Co.'s.

DR. EMORY LANPHEAR, Professor of Materia Medica in the University Medical College and College of Pharmacy, has bought the Fair View Hospital, which will be converted into a home and private hospital for the doctor's patients. Physicians will be glad to learn this hospital is at last in the hands of a "regular."

C. E. CORCORAN, ex-president of the Missouri State Pharmaceutical Association, formerly from the Buckeye State, has been a Kansas City druggist for thirteen years, all of which have been at the old stand, Ninth and Troost avenue. He finds time during the busiest of the holiday season to look after the interests of his association.

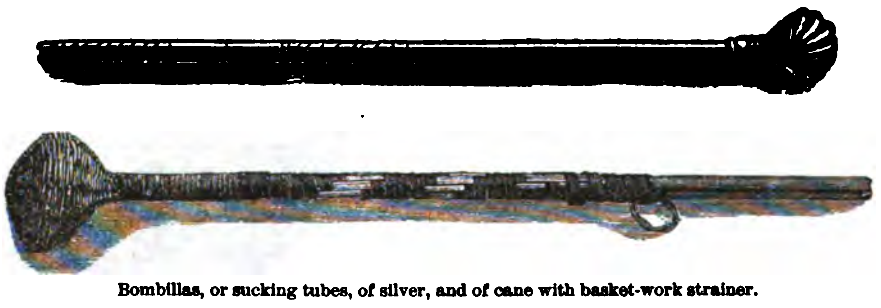
American Druggist
AN ILLUSTRATED TRADE JOURNAL
VOL. XX. NO. 3. NEW YORK, FEBRUARY 1ST, 1891. WHOLE NO. 201.

MATE, OR PARAGUAY TEA.

MATÉ forms the daily beverage of millions of inhabitants of the southern half of South America, viz., Uruguay, Paraguay, the Argentine Republic, Chili, and parts of Brazil and Bolivia. It is imbibed early in the morning, after the noon siesta, and often also in the evening, by all classes of inhabitants. Maté is to the South American what coffee or tea is to the European or to the inhabitant of Eastern Asia; it also takes the place of the alcoholic morning dram so commonly indulged in both in Europe and in the United States. A cup of maté alone will generally satisfy the stomach for several hours, breakfast being usually taken in the later hours of the forenoon. In this way the cooler morning hours can be devoted to work. After the morning meal follows a siesta, which is again followed by maté. Then comes the second but shorter period of work, and finally, toward evening, the principal meal of the day, after which the cool evening breezes are enjoyed. Of course this mode of living is adhered to only by those who have not as yet been initiated into the methods of the so-called modern civilization. The use of maté as a national beverage dates back to the earliest periods. From the aborigines it passed to the Spanish conquerors during their expedition to the upper Paraná and its affluents. No doubt in those days no silver or gold bombillas (tubes through which the beverage is drawn into the mouth) were known. Most likely they used the calabash gourd as a receptacle for the tea, and employed stalks, etc., fringed out at one end to act as strainer, as suction tubes. At least these materials are used even at the present day when the more elaborate apparatus is not at hand.

Maté Cup made of a gourd with the stem as a handle.

Maté Cup of red clay in the form of a gourd, with painted figures.


Bombillas, or sucking tubes, of silver, and of cane with basket-work strainer.

The home of maté is the territory about the upper course of the Paraná and its tributaries, on both sides of the equator, inclusive of the forests surrounding the upper course of the affluents of the Paraguay and the upper Uruguay. Hence it is found in the three southern provinces of Brazil, in the province of Matto Grosso, in the eastern part of Paraguay, and the extreme northeast of the Argentine Republic. The tree (not shrub) from which maté is derived is a species of Ilex (*Ilex paraguaensis* DeC., or *Ilex Maté* St. Hil.). Properly speaking, it is derived from four species, which are, however, very closely related, and which are distinguished by the natives as *caá-guazú*, *caá-mini*, *caá-nú*, and *caá-chiri*. The two first-named probably furnish all the maté, or *yerba*, as it is called, which now comes to market. This word *yerba* (Portuguese *herva*, from the Latin *herba*, herb) is merely a translation of the native word *caá*. *Guazú* means *great*, and *mi* or *mini* small.

The Paraguayan maté or yerba tree (*caá-guazu*), when seen from a distance, presents the appearance of a moderate sized orange tree, though it is thinner and more slender. It may attain a height of about 36 feet; usually, however, it is only about 12 to 24 feet in height, particularly in the forests which are visited by the collectors (*yerbateros*). The dark-green, glassy leaves are about 3 inches long, lanceolate, having their greatest diameter at about two-thirds their length reckoned from the base, dentate, and bear upon their upper surface a mass of small warts or blisters which contain a resinous substance. The small, white flowers have 4 petals and 4 stamens; they are clustered in form of grapes, and are developed into round capsular fruits varying in size from a pepper berry to a pea. When ripe, they have a dark violet color. The tree flowers in Paraguay during October and November, and the seeds ripen during April and May. The leaves are gathered from January to August.

The yerba tree does not grow in continuous forests, but more in irregular batches throughout the region pointed out above. It always prefers the shady side of other trees. Such localities, where it occurs in large numbers, so that it pays to make a harvest of leaves, are called *yerbales*, which are further distinguished by names derived from the districts in which they are situated (San Pedro, San Antonio, etc.).

Throughout the region of the yerba forests of Paraguay there are scarcely any permanently domiciled inhabitants to be found. The yerbateros generally come from the western districts of the country, and return there after the work is done. Toward the end of the year the large operators hire their laborers, overseers, etc., paying them the customary advance, which usually is spent in a short time in dissipation, after which they send them out into the woods, perhaps in company with a drove of cattle and a number of lumbering, clumsy, two-wheeled wagons carrying provisions and tools.

Silver Maté Cup. Peruvian.

The Absorption of Organic Matter by Plants.

In a communication from Prof. Calderon, of the Institute of Las Palmas, Canary Isles, he contests the ordinary view that the nitrogen of the tissues of plants is derived entirely from the nitrates and ammoniacal salts absorbed through the roots. He does not, however, adopt the old theory that the source is the free nitrogen of the atmosphere, but rather the nitrogenous organic matter which is always floating in the air. The nutrition of plants he divides into three classes: *necrophagous*, the absorption of dead organic matter in various stages of decomposition; *plasmophagous*, the assimilation of living organic matter without elimination, or distinction of any kind between useful and useless substances, such as the nutrition of parasites; and *biophagous*, the absorption of living organisms, such as that known in the case of insectivorous plants. A further illustration of the latter kind of nutrition is, according to Prof. Calderon, furnished by all plants provided with viscid hairs or a glutinous excretion, the object of which is the detention and destruction of small insects. To prove the importance of the nitrogenous substances floating in the air to the life of plants, he deprived air of all organic matter in the mode described by Professor Tyndall, and subjected lichens to the access only of this filtered air and distilled water, when he found all their physiological functions to be suddenly suspended.—*Nature.*

Precautions against Consumption.

In a circular on precautions against consumption, published by the State Board of Health of Pennsylvania, the following advice is given: "The duster, and especially that potent distributer of germs, the feather duster, should never be used in a room habitually occupied by a consumptive. The floor, woodwork, and furniture should be wiped with a damp cloth. The patient's clothing should be kept by itself, and thoroughly boiled when washed. It need hardly be said that the room should be ventilated as thoroughly as is consistent with the maintenance of a proper temperature."

On the Alkaloids of Belladonna.

Dr. O. Hesse has recently communicated the results of new researches on the alkaloids of belladonna. We give, in the following, an abstract of his paper contained in the *Annalen der Chemie* (vol. 216, 87):

Up to within thirty years ago only one alkaloid of belladonna was known, viz., atropine, which was first obtained by Mein (1831) from the root, and two years later (1833), independently, by Geiger and Hesse from the herb of belladonna and the extract prepared from it. Although Geiger and Hesse likewise obtained an alkaloid from the root, it is now impossible to say whether this was atropine, since it was amorphous. It is quite possible that it consisted mostly of belladonnine (which was first isolated and recognized by Hübschmann in 1858) or of hyoscyamine. This would not be very surprising in view of the fact, recently reported by Will, that belladonna root originally contains no atropine, but merely hyoscyamine, which is changed into the former during the process of extraction.

The presence of hyoscyamine in belladonna root was first discovered by Ladenburg and confirmed by Schmidt.

Belladonnine appears to exist more abundantly in belladonna than has generally been supposed. Gehe & Co., of Dresden, have paid particular attention to its isolation, but have only met with indifferent success in their efforts to introduce it into medical practice, though it acts very much like atropine.

Belladonnine has been found to differ from atropine and hyoscyamine by being much more resistant against change when boiled with baryta water. This peculiarity led several experimenters (Kraut, Merling, Ladenburg, Roth) to think that pure belladonnine could be obtained by making use of that fact, and thus the following formulas were successively announced for the alkaloid: Kraut, $C_{18}H_{23}NO_4$, and later, $C_{17}H_{23}NO_3$; Merling, $C_{17}H_{21}NO_2$ for the dry base, and $C_{17}H_{23}NO_3$ for the base as it exists in salts; Ladenburg and Roth, $C_{17}H_{23}NO_4$.

It has been reported and maintained that a new alkaloid, oxytropine, is produced when belladonnine is decomposed. This is now demonstrated by Hesse to be an error; he proves that when belladonnine is split by boiling with baryta water, a homologue of tropine, called pseudotropine by Hesse, is produced.

Photographic Appearance of Maté Tea.

Some time ago Hesse announced the presence of a new alkaloid in belladonna, to which he gave the name *atropamine*. This is easily extracted from the mother liquor remaining after the crystallization of atropine, by dissolving the alkaloids contained therein in acetic acid, and adding chloride of sodium to the solution until it begins to become opalescent, whereupon hydrochlorate of atropamine will crystallize out. If the original crude alkaloid extracted from belladonna contains much atropamine, it is not necessary first to separate the atropine, but the atropamine may be made first to separate out by following the before-mentioned method. The crude hydrochlorate of atropamine thus obtained is then recrystallized from boiling water, animal charcoal being used as a decolorizer. The alkaloid itself, when set free, appears as a colorless, amorphous mass ("varnish"), which does not solidify sufficiently to permit reduction to powder. At 60° C. it forms a highly mobile, odorless liquid, as clear as water, which when completely free from moisture (after being dried at 100° C.) has the composition $C_{17}H_{21}NO_2$.

At ordinary temperature concentrated sulphuric acid dissolves atropamine without producing a tint; on warming, the solution turns yellowish. Potassium permanganate is reduced by it, but no odor of any kind is noticeable during the reaction.

The salts of atropamine crystallize readily, but when they are moistened with mineral acids and exposed to sunlight or heat they are easily changed to salts of belladonnine.

On investigating the physiological properties of atropamine it was ascertained by Prof. Berlin, of Rostock, that it had no mydriatic effects whatever, but that it caused irritation and inflammation of the conjunctiva.

It is, therefore, positively hurtful [and it follows therefrom that it should be carefully separated from the mydriatic alkaloids proper, viz., atropine, hyoscyamine, and hyoscine].

Belladonnine is formed when hydrochlorate of atropamine is moistened with hydrochloric acid and exposed to sunlight; also by dissolving the alkaloid in cold, concentrated sulphuric acid; also by boiling it with baryta solution, hydrochloric acid, or dilute sulphuric acid. The following is the best method: Hydrochlorate of atropamine is heated with moderately concentrated hydrochloric acid to 80° C. until a sample of the liquid, when diluted with an equal volume of water and mixed with chloride of sodium, no longer yields a crystalline but only an amorphous resinous precipitate.

The composition of belladonnine agrees with the formula $C_{17}H_{21}NO_2$.

Regarding the decomposition products of atropamine and belladonnine we must refer the reader to the original.

Hesse finds that atropamine, just like hyoscine, is not a constant constituent of belladonna. He has been unable to find it in belladonna cultivated in the neighborhood of his laboratories; neither was it present in the leaves of wild-growing belladonna, and the root of the latter usually contained only traces of it. But a considerable quantity of it was found in a belladonna root of unknown origin. At all events, it seems to occur only in the root.

While making these investigations Hesse paid particular attention to the nature of the other alkaloids of belladonna. He found that the *herb of cultivated belladonna* contains scarcely anything but *atropine*. The whole of the extracted alkaloids—that is, the alkaloid mixture—had the melting point 115° C., while absolutely pure atropine scarcely differs from this, melting at 115.8° C. From the leaves of wild-growing belladonna it was obtained in a less pure condition; and in much smaller proportion was it obtained from the roots, which were worked up fresh and with every possible care to exclude any chance of converting any hyoscyamine that might have been present into atropine. Hence atropine will have to be recognized hereafter as a true constituent of belladonna, and not a mere product of conversion derived from hyoscyamine.

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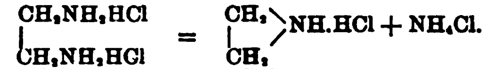
Vegetable Bronzes.—1. Extract 10 pounds Brazilwood in soft water, let it stand for eight days in an open vessel, when pour off the clear liquid into a clean vessel. Heat part of it, and dissolve 5 pounds alum therein whilst hot, and mix with the remainder. Let it stand for eight days, strain off the sediment, and preserve it as a paste. 2. Boil 10 pounds logwood twice in water, and mix the solutions, and evaporate down to one-half. Add 10 ounces chloride of tin and strain through a cloth. 3. Prepare the logwood decoction as above; dissolve in it 10 ounces powdered alum and add about 1 ounce bichromate of potash.

Piperazidine or Spermine.

Recently, under the name "pyrazidinum hydrochloricum," with the synonyms "synthetic spermine" and "Ladenburg's ethyleneimine," a preparation has been placed on the market as probably representing Schreiner's base "spermine," to which attention has been directed, especially in Russia, in consequence of statements made by Dr. Brown-Séquard. In respect to the association of the three names it may be of interest to recall that "spermine" was the name applied by Schreiner in 1878 to a base obtained from crystals separating from spermatic liquid and other organic secretions, in which it existed in combination with phosphoric acid. Schreiner represented the hydrochloride by the formula $C_2H_5N.HCl$, and described the free base as crystalline (*Annalen*, cxciv., 68).

Ten years later Ladenburg and Abel, whilst working upon the imines, found that ethylenediamine hydrochloride could be split up by heat into ammonium chloride and a compound that they looked upon as ethyleneimine hydrochloride, the base of which was possibly identical with spermine (*Berichte*, xxi., 798):

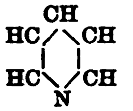


$$\begin{matrix} CH_2NH_2HCl \\ | \\ CH_2NH_2HCl \end{matrix} = \begin{matrix} CH_2 \\ | \\ CH_2 \end{matrix}\!\!>NH.HCl + NH_4Cl.$$

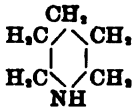
ethylenediamine hydrochloride

ethyleneimine hydrochloride.

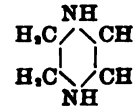
But upon setting free the base, the expectation that it would be a low-boiling compound, volatile at the ordinary temperature, was not realized; and the suggestion that polymerization had taken place was confirmed by the vapor density. In fact, the molecular weight had doubled through the formation of diethylenediimine, or piperazidine. The new compound appeared, however, to correspond closely in all its properties to spermine, except that Ladenburg and Abel failed to obtain a crystalline phosphate, which Schreiner had described as the most characteristic salt, but which, for reasons given, was probably really a double phosphate of calcium and spermine. Whether or not these two compounds are actually identical, it would appear that the compound now introduced is Ladenburg and Abel's diethylenediimine, or piperazidine. In constitution it is a hexahydropyrazine, standing in the same relation to pyrazine as piperidine to pyridine. In fact, piperazidine may be looked upon as piperidine with the CH_2 group in the γ position replaced by NH.



pyridine



piperidine



piperazidine.

The free base piperazidine is represented as occurring as a white crystalline powder, and the hydrochloride as beautiful small crystalline needles, very soluble in water, tasting like sal-ammoniac, and non-poisonous. Possibly the property of this compound that will prove to be of greatest value is its power to dissolve uric acid, which it is said to possess to a remarkable degree.

Dissolved in cold water, in which piperazidine is soluble in all proportions, it is said to be capable of dissolving twelve times as much uric acid as an equal quantity of lithium carbonate. Piperazidine urate, obtained by boiling piperazidine with excess of uric acid, is described as being seven times more soluble than lithium urate in water at 17° C., the respective solubilities being 1 in 50 and 1 in 368. Even in presence of great excess of uric acid an acid salt is not formed, but only the neutral salt, $C_4H_8(NH)_2C_5H_4N_4O_3$, as from the constitution of the compound might be expected.—After *Pharm. Journ.*

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Gold Varnish (proof against air and light).—Digest 2 ounces best garancine in 6 ounces methylated spirit of specific gravity 0.833, in a covered glass vessel, for twelve hours; press and filter. Make a solution of orange-colored shellac in similar alcohol, filter, evaporate it to a clear syrup, and color with the garancine as deep as may be desired.

The Chemistry of Coal.

Carbon and hydrogen form the most important constituents of coal, and it is from these two constituents alone that we derive all the mechanical force when we burn coal. We have now to consider how coal is put together by Nature, and how the powerless materials, carbonic acid and water, become invested with force and converted into powerful matter. The transformation is effected through the agency of plants, and the power with which they become invested is derived from the sun. Light and warmth are necessary to vegetation, and although a minute fraction of light is derived from the stars, and of warmth from the central heat of the earth, yet these are so minute as to be insignificant compared with the light and warmth afforded by the sun; and, therefore, we may affirm that the light and warmth by means of which plants are able to convert these powerless into powerful materials are derived exclusively from the sun.

We have experimented with carbonic-acid water, and with the elements, carbon, oxygen, and hydrogen, composing these bodies, and found that the elements when separate constitute powerful, and, when combined, powerless matter; the separate elements are invested with force, the combined elements are not invested with force. It will be desirable to approach gradually to the consideration of what constitutes the difference between powerful and powerless matter. Here is an iron ball suspended by a string and hanging freely; if it be drawn on one side it differs from the ball at rest, inasmuch as it is invested with force, it is powerful, and when let go swings back beyond its former position of rest. The difference between the two positions of the ball illustrates the difference between the carbonic acid and water on the one hand, and the powerful materials into which they can be decomposed on the other. Here, again, are two suspended magnets. At present they are held fast together by their mutual attraction; if separated to a small distance (by the expenditure of a certain amount of mechanical force) they again rush together, and in so doing are capable of exerting a certain amount of mechanical force. The combined magnets are powerless, the separated magnets powerful bodies; and in this case again we have an illustration of the difference between the combined carbon, hydrogen, and oxygen on one hand, and the separated elements on the other. When the ball or the magnets pass from a state of motion to a state of rest, they each lose something—motion; and that motion can never be annihilated, but is converted into heat. That heat is thus produced on the stoppage of a moving body, the lecturer proved by allowing a moving ball to strike against a substance which readily took fire with a slight increase of temperature. Just as matter becomes invested with power when set in motion, so do the elements which compose carbonic acid and water become invested with power when they are separated; the force necessary to separate them invests them with a large amount of power. You must picture to yourselves chemically powerful matter as particles of matter which have been pulled asunder, and are capable of rushing together again when brought into proper conditions. Starting from the conception of mechanical power, you will not find much difficulty in comprehending somewhat of the nature of chemical combination, and in perceiving the source of the heat and light in the destruction of the motion of the elements which rush together when they enter into chemical combination. In the process of forming coal the solar rays pulled asunder these elements; they transformed the carbonic acid and water first into wood fibre through the apparatus of the plant, and in this way the carbon, oxygen, and hydrogen are invested with an enormous amount of force, equal to that which they afterwards give out when they combine. It is correct to say that the heat and light which we now obtain from coal are a portion of the sunshine of past ages. In this flask there are 139 grains of oxygen, which is just a sufficient amount to combine with the 52 grains of charcoal or carbon put into it. The combination is attended with the evolution of great light and heat, and, in fact, the force of combination is equal to that which would raise 1 ton weight from the floor of this theatre to the ceiling, or which would be generated in the fall of 1 ton weight from that height.

Such are the tremendous forces in action around us; the trees of the forest drink in the sun's rays, and in their action on the carbonic acid and water which are present in the air around them, and in the juices of the plant, they perform the first stage in the manufacture of coal. The sun's light and heat are engaged in the green leaves of the trees in pulling asunder the elements of the carbonic acid and water, and the amount of force thus stored up in one day in a forest of trees is enormous. A moderate-sized geranium may be proved by actual experiment to become invested in one long, bright summer day with an amount of force equal to lifting 1 ton weight to the height of 2 feet. The material furnished by the plant is wood, and in this wood is stored up all the force necessary to transform it into coal; it may now be buried and hid from the sun's light and heat, and requires no more work to be done to it; all the actual work is done when the carbon, oxygen, and hydrogen are pulled apart on the green leaves of the plant. In the condition of wood, however, it contains a considerable quantity of powerless matter—carbonic acid and water—the powerful constituents are loaded, so to speak, with a great weight of powerless matter, and it is the removal of the greater part of this load which converts the wood into coal and renders the latter material so much more valuable. Dry wood contains 40 parts of powerful and 60 of powerless matter in 100. In the presence of moisture wood is subject to decay, it gradually moulders away; but when the air is excluded it gives a material which we know as peat, and which is the next step towards coal. In peat a small quantity of the powerless matter has been got rid of, for it contains 47 parts powerful to 53 parts powerless matter. This chemical process of change—the getting rid of the powerless carbonic acid and water—goes on, and, as may be seen in the lower part of an old peat bog, the material begins to solidify, and this brings us to the next step, which is lignite, or wood coal. This lignite is much used in some parts of Europe as fuel: it contains just as much powerful matter as the wood from which it originally started, and more than the coal which will be derived from it—in 100 pounds there are 58 pounds powerful and 42 pounds powerless matter. Up to this stage no powerful matter has been lost, but in taking the next step, which brings us to coal, a portion of the powerful matter is lost in getting rid of a further quantity of powerless matter. This may be readily seen by the fact that fire damp, which occurs in coal mines, never occurs in lignite mines, and fire damp is the form in which the powerful matter is lost in the conversion of lignite into coal. In fact, lignite loses fire damp, carbonic acid, and water, and yields coal, which has 85 parts powerful to 15 parts powerless matter.

We have in coal a concentrated fuel which in a small space will give out a considerable amount of heat, and heat of considerable intensity; it would not be possible to get from such a fuel as wood the same results we get out of coal. Among coals there are several varieties; there is, for example, the Newcastle coal, which is mostly burned in London; there is Welsh anthracite, which contains more carbon and less hydrogen than Newcastle coal; and there is cannel coal, which contains still more hydrogen than Newcastle coal, and is much used for making gas.

If we examine this marsh gas in the way we examined carbonic acid and water, we find it to be a transparent, colorless gas, lighter than either of the two mentioned gases. It burns with a flame emitting little light but much heat, and in burning it becomes transformed into powerless matter—carbonic acid and water, from which at first it was formed. The flame of fire damp will not pass through a piece of wire gauze, which a flame of hydrogen soon makes red hot and penetrates; hence the possibility of a safety lamp. The safety lamp, however, is not safe under some circumstances; as, for instance, when the gauze has become red hot it is very dangerous, as also when placed in a current, or in the path of the wave of air caused by an explosion. This latter cause has lately been proved to have been one of the most fruitful sources of explosions. Before the invention of the safety lamp, the miner had to content himself in dangerous places with the light of the sparks struck from a piece of flint held against a rapidly revolving steel wheel, and the lecturer showed that these sparks failed to ignite fire damp, nor had he ever been able to ignite it in that manner, yet those sparks ignite hydrogen very readily.

Thus we have followed Nature step by step in the process of putting coal together, and see what a wonderful substance we have got. Here is a small mass of coal weighing 2 pounds, yet this is invested with such an amount of force that when burnt beneath the boiler of a steam engine it would furnish for an entire hour the force of a strong horse. A steam engine is an imperfect and clumsy machine, in so far as it utilizes but a small part of the total force of the fuel, for the total force in the 2 pounds of coal would furnish the force of ten horses for an hour.. In order to produce the same amount of force, we should have to burn 4 pounds of wood.—*Dr. Frankland.*

Source of True Coto Bark.

SOME time ago it was announced by Dr. Th. Schuchardt of Goerlitz, that he had succeeded in obtaining the botanical material (flowers, fruit, leaves, branches, etc.) necessary for determining the source of true coto bark. These materials were placed into the hands of Dr. Karl Schumann, one of the botanists connected with the Berlin Herbarium, who ascertained that they are derived from *Drimys Winteri* Forst., var. *granatensis* Eichl. It is a native of the Provincia de los Andes of Venezuela, growing at a height of 2,500 to 3,000 meters near the borders of the United States of Colombia.

We understand that similar materials have been obtained, entirely independent of those mentioned above, by a prominent botanist of his country, who will probably report on the subject at an early date.

Japanese Bibulous Paper as Substitute for Wafers and Capsules.

DR. ARTHUR HOFFMAN, of Darmstadt, in a paper read before the Hessian Medical Association, reports hereon as follows:

This species of paper, which in Japan bears the name of "Usego," is of a uniform yellowish-white color and silk-like gloss. On the one hand it is of such thin and delicate texture that the finest print can be read through it. On the other it is of astonishing firmness; that is to say, it can be torn but with difficulty.

Dr. Uloth, of Darmstadt, discovered that this paper consists of the bast fibres of the shrub *Wickstrœmia canescens* Meisn. (a Thymelacea), allied to *Daphne Mezereum*, and widely distributed throughout the mountain forests of central and southern Japan.

A piece of the paper 6 Cm. (about 2¼ inches) square suffices to enclose an ordinary medicinal powder weighing, say, 0.5 Gm. (about 8 grains). The powder is placed as compactly as possible in the centre of the paper; the four corners are lifted and tightly united into a small string by twisting them between the thumb and index finger. Any crushing of the small package and all unnecessary crumbling of the paper are, of course, to be avoided. A small paper bag similar in shape to toy torpedoes is the result of the operation.

The twisted portion is then cut off close to the bag, just enough being allowed to remain to keep the bag closed. Treated in this manner, a ½ Gm. (8 grain) powder —of antipyrin, for instance—is scarcely larger than a pea. For administration it is placed on the tongue, and washed down with a mouthful of water.

Arrived in the stomach, the bag unfolds at once, discharging its contents. The advantages of this method over others in vogue may be shortly summarized as follows: In the first place, its extreme simplicity and cheapness, properties that might recommend its employment, especially in hospitals. Another advantage is that the physician, by simply adding to the prescription, "D. ad chart. Japonic.," can have the powders prepared in the pharmacy, ready for immediate use, without additional expense.

The Japanese bibulous paper ("Usego"), as described, is obtainable from E. Merck.

Medicaments administered for a test in the above manner have been traced in the urine after as little as half an hour's lapse; while, on the other hand, no traces of the "Usego" envelope were visible to the naked eye in the stools of the patient, showing the complete disintegration of its tissue in the digestive tract. —*Merck's Bulletin.*

Eucalyptus Honey.

THE following passage is taken from a paper contained in the *Pharm. Journ.* of December 13th, the subject of which is the substance mentioned in the title. The first and main portion of the paper is by Prof. T. P. Anderson Stuart, of Sydney, and the second by J. H. Maiden, of the same city:

This is the latest Australian fraud. The preparation is said to be the natural product of the eucalyptus tree as gathered by the wild bees of Australia, and is reputed to be of great medicinal value. We have examined a sample of this mysterious product, and have no hesitation in declaring that it is a mechanical mixture of leaf eucalyptus oil with ordinary honey. A pamphlet entitled "Note sur le Miel eucalypté, naturel sécrété par les Abeilles noires sauvages de Tasmanie," has been issued by Dr. C. Thomas-Caraman, and the experiments of this physician were communicated to the Académie de Médicine on the 25th of January, 1887. The pamphlet begins with the history of the discovery, which is said to have been made in the year 1884. It is impossible to say what is the exact nature of the substance as originally discovered, but from the sample produced in Sydney, and reputed to be the above, there can be no doubt as to its origin and as to the process of its manufacture.

We fear the learned doctor has been the victim of a practical joke.

[*Note by Ed. Am. Drugg.*—In our volume for 1889, page 137, will be found a communication addressed to us by Mr. Thomas Christy, of London, in which very strong testimony is offered by persons of repute and authority as to the existence of natural honey impregnated with the flavor of eucalyptus and bursaria. The existence of such a honey is not at all remarkable, and will probably find further confirmation. At the same time it is quite possible that some enterprising genius has been trying to improve upon nature and to outstrip the busy bee by manufacturing an imitation, in which the odorous principle was probably added in a profuse and clumsy manner.]

Clarified Honey.

THIS is obtained by E. Dannenberg, of unexceptionable quality, by diluting the crude honey with half its weight of water, boiling for fifteen or twenty minutes, according to the quantity operated upon, the scum being carefully removed, and then adding five or six times sufficient cold water to interrupt the boiling for not over half a minute. After boiling for another fifteen minutes, the hot honey is strained and evaporated. Thus prepared, the author has kept the honey unaltered for over two years.—*Archiv d. Phar.*

The Production of Platinum.

IT is announced from Mexico that M. Flavio Lobato, mining and chemical engineer, has discovered platinum in certain ores extracted from the mines of Las Yedras, in the State of Sinaloa. This news, if it is confirmed, will be of enormous importance to industry, more particularly as platinum is becoming scarcer and realizes an abnormal price.

The platinum mines situated in the Ural Mountains contain, says the *Journal de la Chambre de Commerce de Constantinople*, important auriferous deposits. Until recently gold in large quantities constituted the chief mineral working, and platinum was obtained at the same time without large supplementary expenditure. The richness in gold of the chief mines, Nishnee-Taglisk and Gord-Blagodat, has much diminished, and the preparation of platinum has become more difficult. Such seems to be the explanation of the high price of platinum. A large number of miners have abandoned the mines, and have established themselves on the works of the Trans-Siberian Railway.—*Board of Trade Journ.*

Specific Gravity of Official Syrup.

The U. S. Pharmacopœia gives the specific gravity of the official syrup as 1.310, of course supposed to be at 15° C. This figure is, however, somewhat too low. Curiously enough, the best authorities differ in their results regarding the specific gravities of sugar solutions of different strength. The most generally recognized authorities are Balling and Niemann. We give a short extract from their respective tables, which are for syrup at a temperature of 17.5° C. (63.5° F.):

Per cent Sugar.	SPECIFIC GRAVITY.	
	Balling.	Niemann.
10	1.0404	1.0367
20	1.0832	1.0830
30	1.1295	1.1293
40	1.1794	1.1781
50	1.2329	1.2322
60	1.2900	1.2882
65 (U. S. P.).	1.3190	1.3160
70	1.3507	1.3480
74	1.3760	1.3650

Linseed and Mustard Meal.

It is well known that linseed meal is apt to get mouldy and to be attacked by mites. The insect which eats it up is the cheese-mite (*Tyroglyphus Siro*), which can easily be distinguished by a lens. Another mite (*T. longior*) is also found in old linseed meal, but so far we were not aware of its discovery in mustard meal until M. David, a French pharmacist, recently noticed it. He points out that the idea that this mite gives rise to a kind of itch is erroneous. Méguin has shown that the mites live in any medium (such as those meals) until the supply of food is exhausted; then the males and the larvæ die off, and the females undergo a transformation, becoming neuter and growing an abdomen which enables them to attach themselves to any animal or other medium which will transport them to where they can get more food. As soon as the desired haven is reached the insect immediately begins to resume its former shape and sex, and the life-history continues afresh.—*Chem. and Drugg.*

Detection of Olive Kernels as an Adulterant in Pepper.

M. Pabst recommends for the detection of this fraud a test paper which has been saturated with dimethyl-paraphenylene-diamine, as proposed by Wurster for detecting mechanical wood paste in paper, or thalline which is used in vegetable histology for coloring woody tissues. The paper is laid on a watch glass, moistened with water, and dusted over with the suspected pepper; particles of the olive kernels are instantly colored red, whilst pepper retains its ordinary color. For preparing this reagent the author mixes 10 Gm. of commercial dimethylaniline with 20 Gm. of pure concentrated hydrochloric acid. He then adds 100 Gm. of powdered ice, and then by degrees, whilst stirring, a solution of 7 Gm. sodium nitrite in 100 C.c. of water. The reaction is let go on for half an hour. He adds then 30 to 40 Gm. of hydrochloric acid and 20 Gm. of tinfoil, and allows the reduction to continue for an hour, and then precipitates the tin by means of granulated zinc. The liquid is decanted through a filter, then neutralized with potassium or sodium carbonate until a permanent turbidity is produced, which is redissolved by means of a few drops of acetic acid. Ten Gm. of concentrated sodium bisulphite are added, and the whole is made up to 12 liters with water. The same reagent shows the presence of ground wood, nutshells, etc. Thalline sulphate dissolved in 200 parts of water colors the olive kernels a very fine orange, which is produced more slowly than the red of the former test; and, further, this solution does not keep well.—*Monit. Scient.* in *Chem. News.*

Bleaching with Sodium Hydrosulphite.

The bleaching process with sodium hydrosulphite, which has been industrially employed since 1883, yields excellent results; but, as is also the case with bleaching by sulphurous acid, the fibres thus bleached are unfit for dyeing. For the production of hydrosulphite about 300 liters sodium bisulphite, 35–40° B., are put into a pine-wood tub of 500 liters capacity, to which scraps of pure zinc are added until they reach the surface of the liquid (the volume of metal must not be more than a quarter of the total volume), when the tub is covered up. In order to prevent a too high temperature, earthenware tubes are inserted into the tub, in which cold water circulates. After one hour the liquid is drawn off into a tub, which is always to be kept full, covered, and allowed to stand for twelve hours, when an abundant amount of zinc sodium sulphite has crystallized out. The remaining liquid portion is the bleaching agent. As the latter by the contact with the air is apt to be converted into sodium bisulphite with rising temperature, the tubs for the production of hydrosulphite, as well as for bleaching with it, must always be kept as full as possible and carefully covered.

For bleaching, the material is first well cleaned—*i.e.*, treated with sodium carbonate and then with soap—and entered into a 1,000-liter tub containing a mixture of the bleaching liquid with an equal volume of water, taking care that the tub is nearly filled. After standing covered for six hours the yarn is well wrung and piece goods passed through pine-wood squeezers above the tub. Then the material is at once washed in filtered water; if this washing is delayed the fibres are, by the contact with the air, rapidly heated up to 70–80°, and largely altered. Sometimes goods thus bleached after finishing show stains which are attributable to remnants of zinc sodium sulphite. They are removed by passing the pieces through a cold, very weak bath of hydrochloric acid, and washing in abundant water.

With one single bleaching tub, 3,000 pieces of woollen goods at 100 meters each—*i.e.*, about 36,000 kilos wool—can be bleached per year. About 100 kilos zinc serve for several years, because the undissolved metal can be rendered serviceable for further use by washing it with abundant water which is feebly acidulated with hydrochloric acid. The price of bisulphite is about 25 fr. ($5) per 100 kilos.

When the bath falls below its original level, it is filled up with dilute hydrosulphite, whereby the strength of the bleaching bath is preserved for almost an unlimited period. In a tub of 1,000 liters capacity, about 130 kilos wool can be entered at a time, the cost amounting to about 1.36 fr. per 10 kilos fibre. The simple and cheap process, which in some factories has been used for several years, is probably destined at no distant time to supersede the ordinary bleaching methods.—G. Dommergue, *Chem. Ztg.*

White Ants in India.

That species of termes known as the white ant is very abundant in India, and is dreaded by all European residents, on account of its extraordinary ravages, especially in the larva state, in which it is truthfully called a worker.

The workers unite in colonies of countless numbers and take up their abode in the ground, in wood, on the ceiling or roof of a house, making tunnels and forming routes which lead to the centre of their nests.

Their deeds are deeds of darkness, for so ingenious are they that they form the tunnels inside and leave the surface of the door or beam intact.

I was standing by the door of our parlor, says C. M. Wherry, in the *Graphic* (Chicago), talking to a friend, and, on putting my hand upon the door frame, found that it was hollow. On further examination it was found to be filled with earth along one side, which the termes had deposited as they worked their way through.

One morning our sweeper removed a pile about two feet in height from our dining-room floor, but the energetic creatures, nothing daunted, began their work over again, and by the next morning the pile was a yard in height from the floor and up the side of the wall.

Day after day the sweeper wielded his broom over the spot until he was forced to the conclusion that they meant to conquer him.

As a last remedy, after a great many experiments, he poured a gallon of kerosene over the spot and was exceedingly rejoiced to find that at last they had been driven away after two weeks of hard fighting. But alas! his spirits sank within him when one morning a few days later he found the pile higher than ever.

It became necessary to dig for the queen, as after her expulsion no more are hatched, and they gradually disappear. A hole in the cement floor was dug in which a horse could have been buried, before the queen was found in the centre of her colony.

The abdomen of the queen becomes very much distended with the innumerable eggs which it contains. It is said that one such insect has been known to deposit 80,000 eggs in one day. The larvæ are a creamy white, and transparent enough to show the substance in the body with which the tunnels are moistened when in construction.

After a time they acquire wings, and, flying about during the night, lose them. Being particularly attracted by lamplight, many swarm around the drawing-room lights until the floor is quite littered with the wingless creatures, which soon become the prey of lizards and toads, and, by daylight, of birds. The natives do not eat them as the Africans do.

On account of their secret ravages, the houses of Europeans and of most natives are usually only one-story high, with plastered floors and roofs of earth or grass, which can be renewed every few years.

I have known of people being severely injured by the falling of a heavy mud roof, caused by the white ants having eaten out portions of a heavy beam. So common are they that railroad ties and telegraph poles are often made of iron, as nothing but metal seems to be impervious to their waste.

Trunks and boxes must be kept off the floor, on bricks at each corner, or on stands made for the purpose. It is a common occurrence to walk into a room some morning and find a carpet eaten in several places, or a box of clothing tunnelled through and through, from which you could not get a square large enough for a table napkin. Thus a housekeeper's life becomes one of everlasting vigilance.—*Scientific American.*

Ivory Composition.

A NEW composition, which is to be "used as a substitute for ivory and for other purposes," but which contains a good deal of ivory in the dust form, has been patented by Mr. I. Appletree, of Sheffield, England, who states that his invention is for a new composition or material intended to be used as a substitute for ivory, for the handles of articles of cutlery, billiard balls, and any other articles to which it may be suitable; it is hard and durable, non-inflammable, and may be produced of any desired color or colors. The basis of the new material is preferably ivory, by the use of which term the patentee does not limit the material to the tusks of the elephant, but includes other similar tusks and teeth, such, for example, as those of the walrus. To produce an inferior quantity of material he may also use bone of the kind now used for handles. He uses what may be termed "waste" ivory, such as made by the ivory cutter, in pieces, cuttings, or as dust, the pieces or cuttings being ground down or pulverized before mixing with the other component parts. The material is composed of the following constituent substances and liquids, in the proportions stated, or thereabouts, namely: Granulated or pulverized ivory, 80 parts; isinglass, 20 parts; French chalk, 5 parts; water, 40 parts; gin, 2 parts; cotton wool, 2 parts, according to weight. The above-named substances and liquids are placed together in a boiler, by preference one having an enamelled lining, and heated by the application of, or immersion in, a surrounding bath of boiling water. The mixture is kept constantly stirred either by hand or by mechanical means for a period of about ten hours or thereabouts, until it assumes the consistence of paste; it is then removed from the boiler, placed upon a cool slab, and subjected to a short process of rolling, or similar manipulation, during which process it becomes comparatively cool. The prepared paste is then either divided into portions or taken in the bulk, and after being placed in a suitable mould, or number of moulds, according to the object or purpose for which it is required, it is subjected to great pressure in a press of any suitable construction, such, for example, as a hydraulic press. In the manufacture of handles for table cutlery, the patentee prefers to press the paste into slabs, and then to saw the slab into oblong strips of a size suitable for the handle. It should be understood that the fialments of the cotton wool should be separated either before or during the mixing process, so as to be equally spread or divided amongst the body of the material or paste.

Syrup of Yerba Santa.

MR. HERMAN C. CLEVELAND, in a thesis presented to the Buffalo College of Pharmacy, recommends to prepare a fluid extract of yerba santa, suitable for making the syrup, in the following manner:

Eriodictyon leaves, in No. 40 powder	16 tr. oz.
Potassium Carbonate,	
Water of Ammonia,	
Alcohol,	
Water...........	each a sufficient quantity.

Mix the water of ammonia with water in the proportion of 1 part of the former to 7 parts of the latter. Moisten the drug with 8 fluidounces of this menstruum, and pack it firmly in a cylindrical percolator; macerate during twenty-four hours, then percolate slowly until 3 pints have passed. Add to this the potassium carbonate, and evaporate until a pasty residue is left. Mix this thoroughly with 8 fluidounces of alcohol gradually added. Let the pasty precipitate subside, and decant the supernatant liquor; to the residue gradually add 8 fluidounces of alcohol as before. Pour this mixture upon a strainer and force the liquid out. Should this second extraction measure more than is needed to complete the intended volume of fluid extract (16 fluidounces), dissipate the excess of alcohol by appropriate means, unite the residue with the first extraction, set the mixture aside for twenty-four hours, and decant the clear fluid extract from the scant crystalline deposit meanwhile formed.

A *syrup* may be prepared from the fluid extract in the proportion of 1 ounce of fluid extract to the pint, and should be made according to the following formula:

Fluid extract of Eriodictyon................	1	fl. oz.
Calcined Magnesia.......	½	av. oz.
Water....	7½	fl. oz.
Sugar...............	14	av. oz.

Mix the fluid extract with calcined magnesia, and add the water gradually, with constant stirring; let it stand twenty-four hours and filter; add the sugar and dissolve with the aid of gentle heat.—*Pharm. Journ.*

Rosolic Acid.

THE coloring matter formed by the action of concentrated sulphuric acid upon salicylic aldehyde is very readily formed. The mixture needs only to be heated for an instant at a steam heat, when it is transformed into a solid red mass. This product dissolves in alkalies with a violent red shade. Acids precipitate it in red flakes. It presents a great analogy with rosolic acid, but it is distinguished by the slighter solubility of its magnesia salt, by the red color of its salts and of the precipitate given with acids.

The formation of rosolic acid from salicylic aldehyde is explained by the previous production of phenol. This has led to a study of the influence of phenol upon this reaction, and to see if true rosolic acid could thus be formed. Experiment has confirmed this idea.

A mixture was made of 1 part of phenol, 2¼ parts salicylic aldehyde, and 1 part of sulphuric acid diluted with one-third its weight of glacial acetic acid. Heat is disengaged to such an extent that cooling is necessary. To complete the reaction it is boiled in the water bath, and the resinous product is purified in the ordinary manner. The rosolic acid thus obtained is identical with that of Kolbe and Schmitt.—*Ber. Berlin Chem. Gesell.*

Peanut Lore.

NORFOLK, VA., is the greatest peanut centre in the world, and handles annually 200,000 bags, or 800,000 bushels. It is a pretty sight to see a peanut plantation when the vines are in blossom. The blossoms are a bright yellow and the vines a vivid green. No, the nut does not grow from the blossom. As soon as the blossom appears, a fine branch forms on the vine and shoots down into the ground. The peas, as the nuts are called on the plantations, form on the shoot beneath the ground, like potatoes. When the crop is gathered in October the vine is ploughed up and the nuts hang to the roots. Vines and all are piled in cocks in the field, and in twenty days the nuts are ready to be pulled off, placed in bags, and taken to the factories. There they are cleansed of dirt, assorted, polished in revolving cylinders and ready for the consumer, whether he is the old soldier with the peanut habit or the lover of the nut smoking hot from the roaster.

Petroleum.

THE formation of petroleum has been explained by Mr. B. Byasson upon experimental grounds, as follows: If a mixture of vapor of water, carbonic acid, and sulphuretted hydrogen be made to act upon iron heated to a white heat in an iron tube, a certain quantity of liquid carburets will be formed. This mixture of carburets is comparable to petroleum. The formation of petroleum can thus be naturally explained by the action of chemical forces. The water of the sea, penetrating into the cavities of the terrestrial crust, carries with it numerous materials, and especially marine limestone. If the subterranean cavity permits these new products to penetrate to a depth where the temperature is sufficiently high, in contact with metallic substances, such as iron or its sulphurets, we have a formation of carburets. These bodies will form part of the gases whose expansive force causes earthquakes, volcanic eruptions, etc. Petroleum is always found in the neighborhood of volcanic regions or along mountain chains. In general it will be modified in its properties by causes acting after its formation, such as partial distillation, etc. Petroleum deposits will always be accompanied by salt water or rock salt. Often, and especially where the deposit is among hard and compact rocks, it will be accompanied by gas, such as hydrogen, sulphuretted hydrogen, carbonic acid, etc.

Exercise for Health and Beauty.

FEW theories are carried to a more unwarranted extreme than that of the importance of physical exercise and muscular development. Because exercise improves health, and muscle is a fine thing to own, half-educated reformers preach exercise and muscle as if there could not be enough of them. Any plain-spoken physician will say at once that there can be too much exercise, and that unwise forms of exercise can be injurious. He will also say that there is very slight essential connection between muscle and that supreme physical quality, vitality. Many a man has developed muscle at the expense of vitality, and many a nervous temperament has impaired health by dragging itself through exercise when it needed rest. Muscle is all right in its proper place, but ahead of it come heart, lungs, brain, and stomach. Cultivating muscle does more for beauty, probably, than for health; and since beauty is really one of the proper objects of effort, the forms of exercise which bestow most symmetry of outline and grace of movement are to be studied. One of the women writers who deal out instruction to the sex has recently advocated running. She is nearer the right track than most of the didactic writers of her kind. Running is the great beautifier of figure and movement. Running gives muscular development, strong heart action, and free lung play. The muscle comes where it ought to be, the shoulders go back, the loins hold the trunk well balanced, and the feet take their correct positions. It was running which made the Greek figures. The more active tribes of American Indians have been runners from time immemorial, and from the chest to the heels they are much more beautifully built than the average of white men. Running peoples have usually the firm but elastic texture of flesh which is the beauty of flesh. We know infinitely more about taking care of the human body than Greeks or Indians, and if we would train our children to regular and wisely supervised running exercise, supplemented with other exercises for the hands, arms, and shoulders, we could surpass them in beauty and activity. A general adoption of such a system seems very far from likely, since we have none of the appropriate grounds or apparatus. The next best thing is walking, but most of us walk on our heels, and lift up the feet instead of springing forward with them and driving the body on with the back muscles of the legs. Fashionable people will pay high prices for grooms and riding-masters to go out and teach correct horseback movements, but whoever saw a man, woman, or child with an instructor in walking? Yet horseback riding is a trifle beside good walking in its effect either on health or on those qualities of figure and carriage which the whole world holds in high estimation. Gymnasium exercise is so easily overdone, and may be so injurious in some cases, that it is doubtful whether anybody should go in for the gymnasium strongly without the superintendence of a skilled physician in at least the early stages.—*Kansas City Times.*

Keeping Cider and Apples.

A CORRESPONDENT of the Elmira Farmers' Club says: "If your members wish to keep cider fresh and nice as new, they will succeed by doing as follows: Take the cider fresh from the press, heat it to a boiling point and skim, then bottle and seal up hot. It can be put in jugs or casks. I have put it up so for the past five years, and find it to improve with age.

"A word about saving your apples. You can have fresh apples by packing them in dry hemlock sawdust, as you would eggs in salt. We have them fresh until the new crop is gathered. They should be put in piles to sweat before packing."

Permanent Solution of Litmus.

IT is well known that solution of litmus, made with plain water in the usual way, soon begins to lose its color and its value as an indicator in alkalimetry. This bleaching of the litmus solution is not due, as has been alleged, to the absorption of gases from the atmosphere. From the method of its production it will readily be understood that litmus dissolved in water forms an excellent nidus for the development of micro-organisms, and it is to the presence and growth of these organisms that the loss of color is to be attributed. They require for their growth a supply of oxygen, and this is obtained from the coloring matter of the litmus, which is thereby reduced to a colorless body.

By exposure to the atmosphere oxygen is again absorbed and the solution becomes blue; hence the common expedient of preserving solution of litmus by keeping it in an open or loosely stoppered bottle. I have recently made some experiments with various antiseptics with a view to discover some simple means of overcoming the deterioration to which this solution is liable. I find this object is most satisfactorily attained by substituting chloroform water for distilled water in making the solution. I have here two samples of the solution. The one is made with distilled water, and you will observe that the characteristic litmus color has, to a considerable extent, disappeared. The other has been made with chloroform water, and is practically as good and as deep colored as when it was made.

Both samples have been kept upwards of seven weeks. The use of chloroform water thus secures a permanent solution of litmus and does not in any way interfere with its use as an indicator.—WM. DUNCAN, *Pharm. Journ.*, January 3d.

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Prof. Orton, State geologist of Ohio, says that the natural gas supply is rapidly and surely being exhausted. The way in which the gas is wasted makes the average stranger sick at heart. Great roaring wells, huge batteries, of the cheapest and most wasteful types of boilers, blowing off steam night and day, empty furnaces kept hot for weeks at a time, strike him as crimes against the economy of nature.

Tests for Absolute Alcohol.

It is exceedingly difficult to prepare an absolutely "absolute" alcohol, or, if prepared, to examine it physically and chemically, since it has an extraordinary affinity for moisture. It is owing to this fact that the exact boiling point and specific gravity of really absolute alcohol are, even at the present date, not determined beyond doubt. The best commercial alcohol is always from 1 to about 0.3 per cent short of being absolute. However, for practical purposes a strength of about 99.7 per cent is sufficient. The presence of more than about 0.5 per cent of water can be detected by adding anhydrous sulphate of copper (which is white) to the alcohol. If the alcohol is absolute, or nearly so, the salt will remain white; otherwise it will become bluish or blue.

Detection of Impurities in Alcohol.

This subject has recently been reinvestigated by E. Mohler (*Compt. Rend.*, 111, 187). The reagents which gave the best results are sulphuric acid, magenta acid sulphite, aniline acetate, and potassium permanganate.

Sulphuric acid should be added in a volume equal to that of the alcohol. With a larger proportion, even pure alcohol gives a coloration; with a lower proportion the reaction is less sensitive. The following are the minimum proportions per liter which can be detected: furfuraldehyde, 0.010 Gm.; capryl alcohol, 0.050; isobutyl aldehyde, paraldehyde, acetaldehyde, and isobutyl alcohol, 0.125; propionaldehyde, œnanthylaldehyde, valeraldehyde, and amyl acetate, 0.250; formylcarbinol, acetylcarbinol, heptyl alcohol, and amyl alcohol, 0.500 Gm.

Alcohol containing 0.1 per cent of butaldehyde, acetone, propyl, isopropyl, butyl, and methyl alcohols, and ethyl acetate, propionate, butyrate, isobutyrate, valerate, caproate, œnanthylate, sebate, benzoate, and salicylate, give no coloration.

Magenta bisulphite varies in its action, according to the proportion of acid which it contains. The following solution gives good results: Magenta solution (1:1000), 30 C.c.; sodium bisulphite, 34° B, 20 C.c.; sulphuric acid, 3 C.c.; water, 200 C.c. Ten C.c. of the alcohol under examination are mixed with 4 C.c. of this solution and allowed to remain for half an hour; it will detect in alcohol of 50° the following minimum quantities of impurities per liter: acetaldehyde and œnanthylaldehyde, 0.01 Gm.; valeraldehyde, 0.02; propionaldehyde and isobutaldehyde, 0.05; paraldehyde, furfuraldehyde, butaldehyde, and acetone, 0.50. Alcohols and ethers have no effect on the reagents; the color developed is not proportional to the quantity of aldehyde present.

Aniline acetate is the special reagent for furfuraldehyde, and is not affected by other aldehydes, or by alcohols or ethers. Within somewhat wide limits the color is independent of the proportions of aniline and acetic acid, but the best results are obtained by adding 10 drops of aniline and 2 C.c. of glacial acetic acid to 10 C.c. of the alcohol, allowing the mixture to remain for half an hour. The reaction will detect 1 part of furfuraldehyde in 1,000,000, and even in 10,000,000, and it may be applied in quantitative estimations.

Potassium permanganate in acid solution is immediately decolorized by paraldehyde, isobutaldehyde, and isobutyl alcohol. The reduction is very distinct, and is proportional to the quantity of these compounds present; it may, therefore, be applied in a quantitative manner. Acetaldehyde in the proportion of 1 in 1,000 has no immediate reducing action on the permanganate.—After *J. Chem. Soc.*

Test for Resorcin and Thymol.

H. Borntraeger communicates the following new reactions for the recognition of resorcin and thymol:

Both of these bodies, when brought together with nitrous acid under gentle heat, produce a red or reddish color. Resorcin turns blood-red; thymol yellowish-red. The best way of producing the reaction is to add nitrous acid, best in *statu nascenti*, to a previously acidified solution of either body. If alcohol is used as solvent of the latter, both solutions remain clear. If water is used, the resorcin solution remains clear, but the thymol solution will show copious flakes of a yellowish-red color. In the case of thymol there is at the same time noticeable the pleasant, fruit-like odor of nitrite of thymol. The difference in the color reactions is not very great, hence the odor reaction affords a distinguishing criterion. But there is still a further way of distinguishing them, as follows: Mix in a test tube about equal quantities of calcium sulphate, sodium bisulphate, and a nitrite [sodium nitrite], moisten with water, add the liquid to be tested, and warm. If thymol is present the mixture assumes a chrome-red color; if resorcin, the color is chrome green, while fuchsin-colored drops are noticeable in the upper part of the test tube. This test requires that the solutions be acid.

Both tests are very delicate, responding even in highly dilute solutions; they are also quite persistent.—After *Zeitsch. f. anal. Chem.*, 1890, 572.

Note on Aluminium as a Reducing Agent.

The fact that metallic aluminium, when in contact with solutions of soda or potassa, causes the evolution of hydrogen, is frequently made use of in analysis—for instance, in Fleitman's test for arsenic; also in the estimation of nitric acid, which latter is completely reduced to ammonia. Formerly aluminium was always prepared by the intervention of metallic sodium, but no one suspected that possibly the presence in aluminium of a minute quantity of sodium, remaining as an impurity, would be a necessary condition for success. A recent communication of Prof. A. Stutzer, of Bonn, renders this highly probable. The latter has been accustomed for years to determine nitrate by reducing it to ammonia by means of aluminium. But recently his supply of aluminium gave out, and when he procured a fresh lot it was found that this dissolved in caustic alkalies only with great difficulty. This aluminium appears to have been made by the new process, in which no metallic sodium is used. Prof. Stutzer has since succeeded in obtaining a new supply of aluminium made by the old method, which he thinks will last some years. It is evidently desirable that other chemists should remember this fact, and try to procure supplies of the old kind. If this should fail, however, it will not be difficult to prepare some aluminium similar to it. Stutzer found that it contained not quite 1 per cent of sodium.—After *Zeitsch. f. angew. Chem.*, 1890, No. 23.

To Distinguish Arsenic from Antimonial Stains.

Professor G. Denigès, of the Bordeaux College of Pharmacy, has proposed a simple test to distinguish arsenic from antimony stains in toxicological investigations.

The suspected stain on the porcelain dish is to be sprinkled with a few drops of pure nitric acid. After a slight heating, to complete oxidation, 4 or 5 drops of ammonium molybdate (in nitric acid) are added.

With antimony stains no change occurs, while with arsenic, even in quantities as small as one-fiftieth or one-hundredth of a milligramme, a yellow precipitate of ammonium arseniomolybdate can easily be noticed and identified.—Paris Correspondent of *Chem. and Drugg.*

Determination of the Fatty Acids in Soap.

For the determination of the fatty acids in soap, M. Saupe recommends the following method, which is substantially the same as that employed by Liebermann and Wolff for the determination of fat in milk: Two Gm. of the finely-cut-up soap are dissolved in a separating cylinder with 50 C.c. of water, 5 C.c. of hydrochloric acid are then added, and the free fatty acid is extracted with 54 C.c. of ether *saturated with water*. After the ether has separated, 20 C.c. are measured off into a beaker, the ether evaporated, and the residual fatty acids weighed.—*Chem. Centr.*

Glycerin Suppositories.

Mr. Balland finds that good and permanent glycerin suppositories may be prepared in the following manner:

Glycerin	2 parts.
Lanolin	2 "
Cacao Butter	1 part.
White Wax	1 "

Melt the lanolin, wax, and cacao butter, then add the glycerin. Mix intimately, and at once pour into moulds which had been set into a freezing mixture of salt and ice. The glycerin is thus prevented from separating.

Each suppository is made to weigh 6 Gm. (90 grains).—After *Répert. de Pharm.*

Clear Mucilage.

A correspondent of the *Pharmaceutische Zeitung*, referring to the difficulty of keeping gum-arabic mucilage clear and sweet during the warm weather, states that a little ammonia generally suffices to counteract the acidity. But this is objectionable because of the darkening of the color which is apt to ensue. Of all neutralizing agents there is none better than lime, and it will be found to be advantageous to make the mucilage with a mixture of 1 part of lime water and 4 parts of plain water.

Gutta-Percha Cements.

An elastic gutta-percha cement is especially useful for attaching the soles of boots and shoes, as, on account of its great elasticity, it is not liable to break or crack when bent. To make it adhere tightly the surface of the leather is slightly roughened. It is prepared by dissolving 10 parts of gutta-percha in 100 parts of benzin. The clear solution from this is then poured into another bottle containing 100 parts of linseed-oil varnish, and they are well shaken together.

A very adhesive cement, especially adapted for leather driving belts, is made by taking bisulphide of carbon 10 parts, oil of turpentine 1 part, and dissolving in this sufficient gutta-percha to form a paste. The manner of using this cement is to remove any grease that may be present in the leather by placing on the leather a piece of rag and then rubbing it over with a hot iron. The rag thus absorbs the grease, and the two pieces are then roughened and the cement lightly spread on. The two pieces are then joined and subjected till dry to a slight pressure.

A cement for uniting india rubber is composed as follows: 100 parts of finely chopped rubber, 15 parts of resin, 10 parts of shellac; these are dissolved in bisulphide of carbon.—*Chem. and Drugg.*, from *India R. World.*

Remedies against Worms and Insects.

The insect question is a very important one; they will destroy us if we don't destroy them. The following modes I use as occasion demands, and never fail:

Melon and cucumber bugs like radish leaves better than any other kind. I sow a few radish seeds in each hill, and never lose a plant. Earth worms, cut worms, white grubs, and, in fact, all soft-bodied worms, are easily driven out by salt sown broadcast. You can do no harm with ten bushels to the acre, but a half bushel is ample. Dry slacked lime is also effectual. Potato bugs find their "anti" in Paris green one tablespoonful, flour ten spoonfuls, water one bucket; mix, and keep mixed, as the Paris green settles; apply with a watering pot.

For cabbage worms apply dry salt if the plants are wet, or strong brine if they are dry.

Turnip flies are destroyed by fine slacked lime dusted over the field.

But the whole tribe of depredators are wonderfully kept down by making friends with the birds. They are the natural enemies of all insects, worms, grubs, etc.

In fighting vermin we must not try to oppose nature, but to rather follow her plans, and assist her if she fails. —*Canada Farmer.*

Corn Cure.

Extract of Indian Hemp	5 grains.
Salicylic Acid	30 "
Alcohol	½ drachm.
Ether	1½ "
Flexible Collodion	4 "

Place the extract in an ounce bottle and pour the spirit on it. Shake occasionally until dissolved. Measure the ether and put the acid upon it; it will dissolve by a few stirs with the glass rod. Pour this into the bottle, mix, and add the collodion. Instead of extract of Indian hemp (which is merely employed as an anodyne) 2 grains of cocaine (*not* hydrochlorate) may be used. The recipe otherwise remains the same.—*Chem. and Drugg. Diary.*

Administration of Sulphonal and its Allies.

G. Lunan, of Edinburgh, has patented a process by means of which the disulphones—such as sulphonal, trional, tetronal, etc.—are rendered more readily assimilable. For this purpose these bodies are dissolved in chloroform, ether, etc., and the dissolved drug separated in an amorphous condition either by precipitation with water or by evaporating off the solvent. The drugs thus prepared, or whilst still in solution, are acted on by an oleaginous solvent such as olive oil, castor oil, hydrocarbon oil, or jellies, whereby they are obtained in a more soluble form, and one in which they possess an improved physiological action. They may then be enclosed in a flexible gelatin capsule or other suitable material.—Engl. Pat. 18,434 (November 19th, 1889).

Dangerous Ink.

There has recently been placed upon the market in Europe an ink which seems to be identical with a preparation advertised about twenty years ago as "disappearing ink," the sale of which was finally prohibited by the Government on account of the dangerous use it was put to by unscrupulous parties. The ink is a watery solution of iodide of amylum. It produces beautiful blue-black writing, which begins to fade after a few days and disappears entirely after the lapse of a week. It can be easily imagined how dangerous this ink can be when used by swindlers for notes, acceptances, etc., but, on the other hand, many a politician in the United States might have paid liberally for a bottle, had he known of its existence.

About Leprosy.

A notable contribution to the discussion as to the cause of leprosy is that by Mr. Jonathan Hutchinson in the *Friends' Quarterly Examiner*. Noting the parts of the globe where leprosy is still indigenous, Mr. Hutchinson points out that these are either on the sea coast or in proximity to rivers or lakes, whilst the climatic and racial conditions are extremely varied. He considers the evidence certain that the poison producing the disease gains access to the body in the form of food, and that this must be through "fish,' including "edible mollusks, crustaceans, and all living denizens of water, both salt and fresh." "It may be," he adds, "that the poison is wholly absent from fish under most conditions, and present only under exceptional ones. It seems very probable that fish caught in the warm waters of the tropics are more dangerous than those from northern seas, and that all kinds of preserved or salted fish, or fish in a state of partial decomposition, are more risky than those which are fresh and sound. Lastly, it is possible that raw fish may contain a poison which is destroyed by cooking." There is, however, very little doubt that leprosy is a contagious disease.

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Green Varnish.—Boil 15 parts of powdered resin in 18 parts of water in an iron pot. Add slowly 2 parts of soda crystals dissolved in 5 parts of water, and boil again; add as much more soda in solution, and boil till all the resin has disappeared. Cool, and let it stand till quite clear. Mix the clear liquid with sulphate of copper in solution as long as a precipitate is formed, filter off and dry. It dissolves in oil of turpentine, forming a fine green varnish.

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EDITORIAL.

A recent editorial in *The New Idea* discusses the present and past nomenclature of alkaloidal salts, and quite correctly points out where this is in conflict with chemical nomenclature used in other departments of chemistry, or with the prevailing theories of the composition of these salts. A proposition is then advanced that salts containing non-oxygenated acids should be called *hydro-ides* (this is, of course, not new), and salts containing oxygenated acids, *hydro-ates*. Thus we would say *Quinine Hydrobromide*, in place of the present quinine hydrobromate; and *Morphine Hydrosulphate*, in place of the present morphine sulphate. It is generally acknowledged that the first part of the proposition, which was thoroughly discussed in the journals some years ago, is sound and deserves adoption. In fact, it has been so adopted for a number of years by many chemical writers, and also recently by the new German Pharmacopœia. But we have decided objections against the second proposition, not on theoretical grounds, on which it is quite defensible, but on practical ones. Does any one believe or expect that more than a dozen or so of the physicians of this country would ever prescribe the morphine or quinine salts as follows?

℞ Morphinæ Hydrosulphatis.................. grains....

or

℞ Quininæ Hydrosulphatis.................. grains....

We venture to predict that not more than one in a thousand would do it. And if he did it, he would certainly abbreviate; most likely he would write:

℞ Morph. Hydrosul.......................... grains....

or

℞ Morph. Hydros............................ grains....

or

℞ Morph. Hyd............................... grains....

so as to leave the dispenser in real doubt as to what salt the prescriber meant. Considerations of *safety* should outweigh any theoretical speculations or any attempts to produce theoretical uniformity. We are, therefore, decidedly of the opinion that we ought to leave well enough alone, and to be satisfied to have the physician write hereafter, as heretofore:

℞ Morph. Sulph.......................... grains....

which nobody can misunderstand.

The new Addendum to the British Pharmacopœia, which had for some time been in course of preparation, has been completed, and was issued during December last.

The Committee of the British Medical Council having the matter in charge, in conjunction with the editor, Prof. Attfield, have made certain alterations in nomenclature in the case of substances protected by patents, with a view of overcoming the objections raised against these articles on ethical grounds. Whether practitioners will readily adopt this nomenclature remains to be seen. We doubt it very much.

It had been resolved, among other things, to introduce lanolin, saccharin, and antipyrin. For the latter the curious name "phenylon" had been proposed. We now find the following terms used:

1. For *Lanolin:* "*Adeps Lanæ Hydrosus*"—"Hydrous Wool Fat." This is directed to be prepared by mixing 7 parts of wool fat (see below) with 3 parts of water. In a foot note it is mentioned that "hydrous wool fat" is commonly known as lanoline, which is a registered trademark in the United Kingdom. The *Chemist and Druggist* points out that the admixture of wool fat with water is protected by *patent* in Great Britain (No. 4992 of 1882), and that, as the owners of the patent have a keen appreciation of its value, it would be a risky thing for any apothecary to make the "Adeps Lanæ Hydrosus" of the British Pharmacopœia; that it would, consequently, be safer to *buy* lanoline.

2. For *Saccharin:* "*Glusidum*"—"Gluside." This name is, of course, intended to convey the idea of sweetness, being a corrupted derivative from the Greek "glykys," sweet.

In the course of the description it is stated that the aqueous solution, when neutralized with sodium bicarbonate, yields, on evaporation to dryness, "soluble gluside" or "soluble saccharin," which is very soluble in water.

3. For *Antipyrin:* "*Phenazonum*"—"Phenazone." The Addendum says: "Phenazone is commonly known as 'Antipyrine,' which is a registered trade-mark in the United Kingdom." As a synonym, "phenyl-dimethyl-pyrazolone" is given. According to the *Chemist and Druggist*, the editor of which received an advance copy, the characters and tests are like those given by the German Pharmacopœia; but the isonitrous reaction is performed with sodium nitrite and sulphuric acid, instead of with crude nitric acid alone (which the German Pharmacopœia requires), and the melting point is given as 110° C., against 113° C. in the German Pharmacopœia.

4. Nitroglycerin, or glonoin, has been introduced under the name *Trinitrina*, English "trinitrin." We should have expected that the Latin word would be made to end in *inum*, in accordance with the nomenclature elsewhere adopted (glycerinum, etc.). Incidentally we may mention that we are not in accord with the nomenclature recently proposed by a Committee of the American Association for the Advancement of Science, so far as the termination of alkaloids and neutral principles is concerned. We prefer *ina* (English *ine*) for the former, and *inum* (English *in*) for the latter, and believe that there is a suf-

ficient number of authorities following this spelling to warrant its permanent retention.

It would be highly desirable to ascertain how far the new names prescribed by the British Pharmacopœia for the three patented or proprietary articles above mentioned will be followed by prescribers. Price lists of wholesale and manufacturing houses will no doubt be made to retain the firmly established commercial name, and druggists or physicians ordering the articles will likewise stick to the old terms. We know from our own experience how difficult it is to induce people to change a familiar nomenclature. Wholesale houses bear a large share in this. To the present day, the price lists of most manufacturing chemists in the United States quote, for instance, *Chrysophanic Acid*, and omit *Chrysarobin*, though the former is wrong, and the latter the official name. It is even a notorious fact that the salesmen in some of these houses, when asked for a quotation of "chrysarobin," state that this article is not kept by their house, as they are not aware of the true nature of the article.

SEVERAL attempts have been made in former years to organize such a system of drug sales in this city as have long been customary in London and as were described in our volume of last year, but they have thus far failed after a very brief term of existence. Philadelphia dealers in drugs have also, we believe, made a similar attempt. It has long been recognized as an unfilled want, but the conditions to insure its success do not seem to have been favorable.

On the 26th of January an organization was formed, under recent provisions of the Board of Trade and Transportation, which may result in something of the nature of a regular drug sale and be of considerable advantage to the trade generally. The organization is, in fact, a section of the Board of Trade and Transportation, which will serve as an administrative centre, and which is intended to embrace sections of such other branches of business as cigars, soap, bottles and glass, etc.

Among the firms represented at the meeting were Dodge & Olcott, Tarrant & Co., J. H. Baker & Bro., Lehn & Fink, Seabury & Johnson, Fairchild Bros. & Foster, Fraser & Co., Schoelkopf, Hartfert & Maclagan (Limited), Theodore Ricksecker, Rogers & Pyatt, R. W. Robinson & Son, Williams, Steiger & Co.

George M. Olcott, the temporary chairman under the preliminary organization, presided and explained the objects of the section. He declined an election as permanent chairman on account of a press of other business, and the honor was then accorded to John McKesson, Jr., of McKesson & Robbins. S. W. Fairchild, of Fairchild Brothers & Foster, was elected vice-chairman. F. S. Gardner, the acting secretary of the board, will be secretary of the trade section.

Two plans for committees were submitted to the meeting. One called for a number of committees, each with a specified field; the other provided for one executive committee, which should look out for all the interests of the section, except in cases where it seemed advisable to appoint special committees. The latter plan was finally adopted. The executive committee consists of the chairman and vice-chairman and Messrs. George J. Seabury, Albert Plaut, and F. M. Robinson.

This section includes wholesale druggists, manufacturing chemists, perfumery manufacturers, and importers of essential oils.

ALFRED WRIGHT, of Rochester, N. Y., widely known as a manufacturer of perfumery, died on the 19th of January. He was born in Avon, Livingston Co., November 6th, 1830, and had been engaged in the manufacture of perfumes for twenty-five years, within which time his factory became one of the most completely appointed establishments in the country. He was noted for his interest in public affairs, and held many positions of trust and honor in the Park Commission, banks, hospitals, charitable and educational and religious bodies. He was a liberal contributor of both time and money to whatever was calculated to promote the welfare of his fellows.

NEWS NOTES.

GEORGIA GLEANINGS.

THE new year, so far, is crowded with great prospects for the pharmacist. From every side comes encouraging news of good business, and the drug trade, at least, is flourishing.

"The Grip" is by odds more prevalent this year than last, and keeps doctors and pharmacists "up to their eyes" in work.

DR. DUNCAN has returned from Europe, where he spent eight or nine months, and is now quite ill at his residence.

RYLAND C. WILLIAMS, late with Butler's Pharmacy, is now "mashing" (drugs) for Messrs. Howard & Willett, of Augusta, Ga.

W. K. LAYTON, formerly with Porter's Broughton street pharmacy, has accepted a position with Messrs. Sledge & Co., of Athens, Ga.

The small-pox scare has put many shekels in the pockets of the manipulators of the vaccine virus.

S. J. HART, who was at Dupuy's pharmacy, Richmond Va., has accepted a place and is now at Butler's Pharmacy.

L. C. STRONG's store would never be recognized as the same place since he has put on a new iron front, added new fixtures, and made such extensive improvements. It is an elegant and inviting place.

W. C. FINCHER has resigned his place at R. A. Rowlinski's, and has gone in for himself at Dalton, Ga. He will be sure to succeed, and we wish him a great deal of it.

H. GALLAGHER & Co., a new firm in a new building, are satisfied and happy, and delighted with their sales.

GEO. F. SYMONS, late Symons & Mell, the popular pharmacists, died the 10th inst. after a short illness, of paralysis, at his suburban home in Pooler.

DR. J. A. W. WEGEFARTH has just returned from Baltimore and the deathbed of his father.

DR. B. F. ULMER, one of our leading pharmacists, died January 18th. He was the originator and proprietor of many valuable preparations, and did a splendid business.

THE HABERSHAM STREET PHARMACY has moved across the street into the new building erected for it, and looks a model of neatness and elegance. Proprietor Cleaveland is delighted with his change.

MRS. HARDEE is to reopen the stand just vacated by the Habersham Street Pharmacy, with Mr. O'Rear, of Salt Lake City, as manager.

H. W. THOMAS, who goes to R. A. Rowlinski, is succeeded at L. C. Strong's by H. E. Morrison, who was formerly at the Dispensary.

MICHIGAN MEMORANDA.

WILLIAM F. SEATON, formerly of Detroit, but now president of the American White Lead and Color Works, of New Orleans, La., was married to Miss Mary Higham, at Lansing, on the 13th of January. They will make a two weeks' wedding journey through Florida before returning to their future home in New Orleans.

A MINERAL SPRING has recently been struck on the farm of Alfred Woodworth, a few miles west of Detroit. An examination showed it to be very similar to the Mt. Clemens water, and certain capitalists contemplate buying the spring and erecting a sanitarium on the grounds.

THE HEALTH BOARD of Detroit reports a large decrease of diphtheria and scarlet fever cases. Windsor, however, has more than her share, and a serious epidemic is feared.

DR. D. W. MARTIN, of Lakeview, who brought suit against Andrew McAsee, a prominent lumberman, for $25,000 damages for alienating his wife's affections, was awarded $650 by the jury.

THE MICHIGAN SALT COMBINE has decided to dissolve March 31st, a resolution to that effect being adopted at its last meeting. Increased competition in other parts of the country is the cause assigned for this action.

MR. A. F. W. NEYNABER died of acute pneumonia on January 15th at his home in Windsor. Mr. Neynaber was well known to the manufacturing trade throughout the country, and was connected with the firm of McKesson & Robbins for several years before coming West. He was the author of a "Students' Latin Grammar" and the inventor of an improved process for coating pills with gelatin. Four sons survive him, two of whom inherit their father's love of pharmacy, and like him are practical pill manufacturers.

DR. J. W. PALMER, of Detroit, who received a small supply of Prof. Koch's lymph from Berlin in December, has two patients under treatment, both suffering from incipient consumption. He reports them as having steadily improved ever since the injections were commenced, and hopes to effect an ultimate cure in both cases.

THE CUSTOMS DEPARTMENT recently made a raid on all the Chinese laundries in Detroit, with the expectation of making a rich haul of smuggled opium, but either they had been misinformed or else the benighted heathen were on to their little game. At any rate, the results of their labors were as barren as the victim of one of Mr. Lawson Tait's most brilliant efforts.

The new DEPARTMENT OF PHARMACY of the Detroit College of Medicine was formally opened on the evening of January 5th. The trustees and faculty of the college have long contemplated this addition to the institution, but heretofore have been deterred by the lack of suitable apartments, and by other reasons. On moving into their new building, however, they found ample space at their disposal, and through the generosity of some of Detroit's wealthy citizens were enabled to secure the services of an efficient corps of instructors. After a few preliminary remarks by the president of the board of trustees, Dr. T. A. McGraw, the Dean of the Faculty, made the opening speech. He said the present occasion brought forcibly to mind a similar one twenty-two years ago when the College of Medicine was first opened, and then traced the gradual growth and development of medical and pharmaceutical science, with the corresponding increase in educational facilities, up to the present time. He pointed out the great and incalculable benefits, both direct and indirect, which all educational and scientific institutions bestow upon the cities wherein they are located. Not the students only, and the tradesmen upon whom the students shower their wealth, are the gainers. The boarding-house keepers and bartenders imperceptibly, almost unconsciously, but nevertheless surely, imbibe a precious knowledge of scientific laws, medical facts, and the principles of pharmaceutical assaying, through continually hearing lengthy discussions between erudite medics and pharmics carried on during their hours of relaxation. The directors of the college will not stop with this addition of the department of Pharmacy, but it is their intention to gradually add other special schools. They already have in view the establishment of a School of Dentistry, a Lying-in Hospital, a Veterinary Infirmary, and a Chair of Comparative Anatomy.

At the conclusion of Dr. McGraw's speech, brief remarks were made by J. E. Clark, M.D., Professor of General Chemistry; J. LeRoy Webber, Professor of Pharmaceutical Chemistry; J. W. McEachren, Professor of Theoretical Chemistry; Leon C. Fink, Professor of Practical Pharmacy; George Suttie, Professor of Materia Medica; and last, but not least, E. C. Skinner, Professor of Pharmacal Jurisprudence.

The affair passed off very pleasantly, and closed with an inspection of the new pharmaceutical laboratory and lecture room by the students and guests present. Detroit is to be congratulated upon now having a first-class school of pharmacy, well equipped in every respect, and comparing favorably with the foremost colleges of the kind in the country in point of educational facilities and advantages offered by a laboratory complete in every detail, if not in the number of its students.

THE KALAMAZOO ACADEMY OF MEDICINE held its annual meeting January 20th. There were an afternoon and an evening session, the latter followed by a banquet. The following officers were elected for the ensuing year: President, Dr. Adolph Hochstein, Kalamazoo; First Vice-President, Dr. Huff, Bloomingdale; Second Vice-President, Dr. J. Simpson, Kalamazoo; Secretary, Dr. O. A. Lacrone, Kalamazoo; Librarian, Dr. A. O. Rockwell, Kalamazoo.

THE MICHIGAN STATE BOARD OF PHARMACY held a two-days session in Saginaw on January 13th and 14th. The Board is composed of George McDonald, of Kalamazoo; Jacob Jesson, of Muskegon; James Vernor, of Detroit; and Stanley Parker, of Owosso. The meeting was a very successful one, forty-one applicants being examined, of whom one was a lady.

The following were given certificates as first-class pharmacists: A. E. Dryer, of Ann Arbor; A. F. Dunlap, of Alpena; M. D. Henes, of Bay City; W. C. Church and D. Watson, of Detroit; C. T. Hicks, of Pontiac; J. R. Lewis, of Otisville; H. N. Montin, of Ishpeming; C. L. Osborn, of Vandalia; J. D. Vanness, of Peck; F. A. Sanford, of Grand Rapids; E. C. Voght, of Escanaba; H. N. Melochie, of Belding; Harry Dolson, F. C. Schirmer, and A. B. Fleischer, of Saginaw.

Those who passed the examination for assistant pharmacists were the following: W. R. Bacon, of Ann Arbor; C. W. Burdick, of Flint; J. Fairburn and H. Keller, of Detroit; B. E. Mathews, of Wayne; T. Dugan, of Lapeer; Elizabeth Golden and H. E. L. Smith, of Fenton; T. Karmsen, of Greenville; A. L. Kirtland, of Lakeview; H. B. Longyear, of Mason; G. McGillavray, of Ionia; W. P. Payne, of Lake Odessa; W. C. Babcock, of Britton; W. E. Decker, C. R. Fisher, C. L. Grube, H. A. Herzer, and E. Auschutz, of Saginaw.

ILLINOIS ITEMS.

A number of drug clerks spent the holidays at the homes of their parents. Among those who left the city to do so were Charles Rimmele, Paul Wickert, John Bick, John Witzmann, and Gustav Montag.

SCHMIDT BROTHERS have established a new store at 71st street and Cottage Grove avenue.

CHARLES W. DAY, erstwhile secretary and late president of the Illinois Board of Pharmacy, is now wrestling with the homœopathic interpretation of the Æsculapian science at the Hahnemann Medical College of Chicago.

THE DIASTASE CLUB meets every Friday at the club rooms in the Old Quincy.

The style of the old firm of Moench & Reinhold (Ontario and Clark streets) has been changed to W. Moench.

MR. HELLER has disposed of his store at 31st street and Michigan avenue to King & Rogers.

H. H. GREEN, of Bloomington, has been appointed by Governor Fifer to succeed C. W. Day, whose term of office as member of the Board of Pharmacy expired December 31st. Mr. Green has the honor, we believe, to be the first licentiate in pharmacy serving as a member of this board. He will be remembered as the first one to fire a bomb at the maladministration of the former pharmacy law. Whether this was done satisfactorily is not to be discussed here, but it is acknowledged that some of the facts adduced by him were not disproved, and that his intentions were certainly of a most beneficent character. We regard the new member of the board as a thorough, faithful, and conscientious man, and a competent pharmacist—the right kind of a person to carry out the principles of the law.

MR. REINHARD has opened a new store at Centre street and Hudson avenue.

PROF. HIRSCH, the alleged discoverer of a new process for the manufacture of aluminium on a cheap commercial basis, appears to be well known in pharmaceutic circles here. His process turns out to be a fraud, the metal which he claims to have produced having been furnished him at the regular market rates by a Pittsburgh concern. No doubt the credulous capitalists whom he inveigled are now deeply regretting their venturesomeness.

M. L. BRAUNS is now in business at 1119 California avenue.

THE BOARD OF PHARMACY met in Springfield on the 6th of January for the examination of candidates for the certificates of Registered and Assistant Pharmacist. The following were awarded the certificate of Registered Pharmacist: J. G. Bell, Tallula; G. B. Beresford, Hume; F. W. Cassingham, Roberts; W. H. Fish, Bayliss; H. H. Metz, Decatur; J. Malster, Chicago; J. E. Voight, Chicago; and F. M. Wales, of Lanark.

The following were awarded the minor certificate of Assistant Registered Pharmacist: H. Clark, Williamsville; F. E. Cooke, Mendon; D. L. Hess, Hettick; G. L. Henstize, Robinson; A. S. Mitchell, Springfield; and J. H. Montgomery, of Chicago.

At the business session F. Prickett was elected president, W. P. Boyd vice-president, and H. H. Green treasurer.

John McGee has bought out his former employers, Field, Benedict & Co., at 57th street and Jefferson avenue.

A special lecture on the "Untoward Action of Drugs" was delivered by Dr. Kiernan at the Chicago College of Pharmacy, January 8th, and one on "Urinalysis, Physically, Chemically, and Microscopically Considered," by A. E. Hiss on January 15th. Two lectures will be delivered by Prof. A. E. Ebert on "General and Special Notes on Pharmacy and Pharmaceutical Practice."

The wife of **Prof. Ebert** is very ill.

W. H. **Stolte** has fairly recovered from typhoid fever.

A copy of the constitution and by-laws of the Louisville Botanical Club recently came to hand, and with it a circular such as was sent to each member of the club. Aside from the interest in general which attaches to the club, which is composed of pharmacists and was organized for their advancement, socially, scientifically, and commercially, the circular is of special interest to the druggists of Chicago, inasmuch as attention is called to the fact that a dry-goods house of that city advertises prescriptions at 50 per cent prices, thus at once creating the presumption that Chicago furnishes the only instance of cut rates on prescriptions.

Prof. Albert E. **Ebert**, an old and well-known member of the Chicago College of Pharmacy and a prominent member of the American and Illinois Pharmaceutical Associations, recently celebrated the grand climacteric of his life. A surprise lay in store for him. On the evening of that day several of his college friends called upon him and inveigled him into the midst of a larger assembly of associates. A very pleasant time was had until midnight, when the assemblage dispersed. Naturally enough, the principal topics under discussion were the future welfare of the college and the National Association. Among those present were Senator Thiele, Prof. Hallberg, Dr. Hildebrand, A. G. Vogeler, R. C. Frerksen, F. M. Schmidt, Andrew Scherer, C. L. Feldkamp, H. W. C. Martin, A. T. Fleischer, E. R. Wolfner, W. K. Forsyth, and T. N. Jamieson.

A meeting of the Executive Committee of the Illinois Pharmaceutical Association was held in the Sherman House on January 14th.

ST. LOUIS SIFTINGS.

Mr. Chittendan is one of the most popular visitors to the retail drug stores of this city. He is local agent for several Eastern firms.

Charley Borchers, Ph.G., pharmacist at the Missouri Pacific Railway Hospital, is becoming quite an amateur photographer.

Dr. A. C. **Anthony**, of Mine La Motte, Mo., is in the city on a visit and vacation. The doctor is as young and handsome as ever.

Theo. F. Meyer, General Manager and Vice-President of the Meyer Brothers Drug Co., is in Texas on business.

S. E. **Barber**, of Louisiana, is doing some work for the J. H. McLean Medicine Co. while attending the College of Pharmacy. He is a rising young man.

Dr. J. C. **Falk**, of the City Hospital, will deliver a lecture on "The Examination of Urine" in the near future. It will be under the auspices of the Alumni Association of the St. Louis College of Pharmacy, and be especially adapted to the needs of druggists.

J. A. W. **Fernow**, corner of Broadway and Market street, is pushing proprietary goods in an earnest manner. He is a hustler.

Oscar F. **Bausch** is with the Mallinckrodt Chemical Works and is pleased with the position.

Louis Cousins, M.D., Ph.G., is doing quite a business in comic illustrations. Advertisers should write to him.

Some of the local druggists got out very fine calendars, while a few distribute rather common ones that the children even refuse to take.

There are three lady students at the St. Louis College of Pharmacy this year. One of them is the wife of a prominent city druggist.

Fine candies are becoming common in the stores of this city. To this the confectioners object, and cut rates may be a result.

The new electric and cable street-car lines all help the down-town druggists, but do not please the pharmacists who have small stores in the suburbs.

Wm. Ilhardt is permanently located with J. M. Good at 2348 Olive street. This is one of the finest prescription stores in the city.

Mr. Hoffkamp has changed from the Meyer Brothers Drug Co. to the Moffitt-West Drug Co. He is a popular salesman.

NEW ENGLAND NOTES.

The special meeting of the Massachusetts State Pharmaceutical Association, held in December in Boston, to receive the report of the committee, appointed at the annual meeting, to take into consideration the matter of co-operative manufacturing, was well attended, and much enthusiasm was manifested. The plan on page 48 was adopted, and the committee of fifteen to whom the matter was left, with the understanding that upon the indorsement of twelve of the committee it should be considered as adopted by the association, have since indorsed it unanimously, so there is every probability that immediate action will be taken in the matter. The scheme has since been indorsed by the Rhode Island Association, so that it will doubtless find favor all over New England. It would seem as if this should call the attention of the proprietary manufacturers to the growing indisposition of the retail trade to longer handle articles that yield no profit. The present attitude of refusal to handle patents that are sold in bazaar stores must prove a great injury to them, but if a combined effort is made to push something else it will add to this. There seems to be a strong feeling (daily growing more prevalent) that the only remedy for cut prices is some modified plan for selling only to agents direct, and only to such as will give absolute assurance of willingness and ability to keep agreements not to cut or supply cutters. It remains for the jobbers to say whether they shall be "in it" or not. If they decide that it entails too much trouble and expense, it seems safe to say that the advent of another year will see them on the side with the goats—*i.e.*, "the left"—and goods will be sold direct to the retailer by the manufacturer.

It is understood that Mr. C. I. Hood is projecting a plan that will soon be put in operation, and which it is expected will to a large extent solve the difficulty. The proprietor that will step to the front with a plan that will protect the retail druggist in obtaining good prices can do the best stroke of advertising that he has ever done, and boom his goods all over the country. The cutters in many places seem to have got their fill, for one prominent cutter lately offered to put down $1,000 if some stop could be made to it.

The soda-fountain combine went into effect the 1st of January, and includes all the manufacturers save the Low Art-Tile Company, and every effort was made to include them, but so far without effect. The deal seems to be towards uniformity in prices to be allowed for old fountains, the permission to use each other's designs after the lapse of two years, etc.

One of the most enterprising young firms in Boston is that of Beach & Clarridge, on India street, manufacturers and dealers in fountain requisites and fruit flavors. They are live young men, with something new to tickle the palate, and are "hustlers from Wayback." "Cleveland" has big feet, but they get there both at once every time.

The testimonial tendered ex-President Canning, of the Massachusetts College of Pharmacy, took the shape of a banquet at Young's Hotel on the evening of January 8th. It was a truly royal affair, and one of the finest of the kind ever undertaken by the drug profession in Massachusetts, reflecting great credit upon the committee—Messrs. J. G. Benedict, E. C. Marshall, and W. W. Bartlet. The tables, besides being laden with good things to eat, were handsomely decorated with flowers, while at each plate was a beautiful souvenir menu. A handsomely engrossed and framed set of resolutions, signed by his colaborers, and a beautiful silver tea service, were presented to Mr. Canning. There were present twenty members of the faculty and trustees. It was a testimonial worthily bestowed upon one of Massachusetts' most enthusiastic, most beloved, and self-sacrificing pharmacists.

The Boston Druggists' Association will hold its annual meeting for election of officers on the last Tuesday in January, to be followed by a banquet. The latter is one of the great events in pharmaceutical circles around the "Hub," and an invitation to attend is considered a great favor.

The Rhode Island Pharmaceutical Association held its nineteenth annual meeting in Prescott Post Hall, Providence, January 14th. The meeting was called to order by the president, Mr. F. A. Jackson, of Woonsocket. It was the largest meeting held by the Association in several years.

The executive committee reported that unless greater interest was taken another year in the chemistry class, in charge of Prof. Calder, it would be found necessary to discontinue it. No action was taken on the subject. Treasurer Fenner reported a balance in the treasury of $104. Secretary Cates reported two deaths and several resignations, leaving a membership of ninety. President Jackson, as delegate to the Convention for Revision of the Pharmacopœia, and Secretary Cates, as delegate to the American Pharmaceutical Association and the Convention of State Secretaries, made their reports. President Jackson in his address recommended the indorsement of the Massachusetts co-operative scheme, and the nomination of pharmacists from which list the governor should select the Pharmacy Board, both of which were accepted and adopted by the Association.

Much discussion was brought out in regard to a motion that it be the sense of the association that it is in favor of interchange of certificates by State boards of those who have passed by examination, which was adopted by a strong majority. A list of twenty was nominated for the governor's selection of seven, to serve as the Board of Pharmacy, as all the present members go out in July.

It was voted to pay the travelling expenses of the secretary to the annual meetings of the Connecticut and Massachusetts associations, and to remit the dues of the secretary and treasurer. A motion was made to pay the secretary a salary, but at his suggestion the matter was dropped, he stating that he considered himself sufficiently remunerated already.

Prof. Viall, formerly of Cornell, read a paper on "New Remedies," including in the list and giving brief descriptions of antipyrin, acetanilid, exalgine, paraldehyde, chloralamid, sulphonol, resorcin, ichthyol, iodol, salol, pyrolin, guaiacol, etc.

Election of officers resulted in the election of Mr. Jas. O'Hare, of Providence, as president; H. M. Dudley, Woonsocket, vice-president; W. E. Cates, Providence, secretary; and A. W. Fenner, Jr., Providence, treasurer.

Four new members were admitted.

After being in session about three hours the association adjourned to Tillinghast's for the annual dinner provided at the expense of the treasury.

After the excellent menu had received the requisite attention, President O'Hare called upon the toast-master for the occasion (Mr. E. C. Danforth) to take command. Colonel Danforth, as became a good officer of the State militia, obeyed orders. He first called upon the president to welcome the guests, and then introduced Mr. J. W. Colcord, of Boston, as a gentleman who, from the nature of his business being in touch with the pharmaceutical profession throughout New England in all its branches, manufacturing, jobbing, and retailing, was able to enlighten them on the state of trade at present with the prospect of future relief.

Mr. C. related a story of how Mrs. Maloney was April-fooled, and stated that the retail trade, having had their April-fool, proposed to have as the next celebration a Fourth of July by asserting their independence. He related interviews with prominent manufacturers who, he was satisfied, were honest in their assertion of willingness to attempt to afford relief to the trade from cut prices. He predicted that the present year would see a great advance in the method of doing business, and that the retail trade were about to experience better times. The only requisite on their part was backbone, greater independence, and unanimity of action.

Dr. Peters, of the Rhode Island Hospital, was called upon, and requested his hospital steward, ex-President Taylor, to speak for him, which he briefly did.

Prof. Viall spoke principally in defence of State boards of pharmacy and a disbelief in the expediency of interchanges of certificates, with a plea for better education for the clerk and a better knowledge of current literature by the pharmacist himself.

Mr. Dudley, Mr. Cates, Mr. Vars, and others were called upon to speak, and severally bowed their acknowledgments.

A little over a month ago, Mr. L. M. Brock, of Lynn, a member of the Massachusetts legislature, and proprietor of Mrs. Soule's Moth and Freckle Lotion, was haled into court to answer to the charge of selling a bottle of the lotion (which consists of a solution of mercuric chloride) in violation of the law which requires all poisonous compounds to be duly labelled. He took the ground that the purchase was made under plea of desiring to sell again and at the jobbing price, therefore he was exempt from this restriction, on the ground that jobbers and manufacturers were not required to so label; and the matter was settled out of court. The next move on the part of the Board of Health was to prosecute several retailers on the ground of failing to label and record the sale of this same preparation. What the result will be is awaited with interest. While in some respects it is well to provide safeguards on this article, yet it seems unwise, as it is simply providing another competitor to "Rough on Rats" in the hands of the would-be suicide, by advertising it as such.

A lady correspondent from Maine writes, asking if Senator Don Cameron, of Pennsylvania, is the Decameron that she has heard quoted, and if his stories are to be found in the *Congressional Record*. In reply we suggest —**Reed**.

Mr. Quin is soon to open a drugstore at the corner of Washington and Brookline streets, Boston, with one of Melvin & Badger's clerks in charge.

Mr. McIntyre, formerly a clerk for Barker, is to open a new store in Gloucester.

Mr. F. E. Fisher, late with Lillibridge, is to open a store in Mansfield.

C. H. **Beedle** & Co. are opening a new store in Lawrence, and one is to be opened by G. G. **Frederick** in the same place.

Robbins & Smith are to open one in Worcester, Mass., in the store vacated by W. L. Davis, who returns to his old stand from which he was forced to remove on account of fire a year ago.

Mr. W. R. Wattles is to open a new store in Pawtucket, R. I.

Mr. F. L. Capwell will occupy his new store about January 1st, in the same place.

L. B. **Sweet** & Co. have opened a new store in Bath, Maine.

Messrs. Conley & McManus, of Newburyport, have made an assignment, offering 30 per cent in settlement.

B. A. **Staples** has sold his store in Providence, R. I., to Archie Reeves, formerly with Howe & Carr.

Davis & Young have opened a very handsome new store in Lynn, Mass.

A. B. Grover, of East Weymouth, Mass., will open a store in Charlestown about March 1st.

C. A. Siegemund has sold his store in Boston to Martin & Co., of Concord, N. H.

The governor, in his address, suggested the abolition of the State commissions, including the Board of Health and of Pharmacy, but they will stand another year at least, in spite of demagogism.

A. D. Mowry's store, on Boston Highlands, was damaged by fire on the 18th of January to the amount of $1,000.

The Pharmacy Board of Massachusetts had a three-days session during the first week of January, during which eighteen applicants, out of a total of forty-one, were successful.

Mr. Copley, of Dorchester, Mass., is soon to open a store there.

Mr. Brown, now a clerk with G. E. Fairbanks, of Dorchester, Mass., is going soon into business on his own account.

F. E. Grove, of Dudley street, Boston Highlands, is to fit up and move into a new store.

F. H. Butter, of Lowell, Mass., expects to get into his new store about March 1st.

Brewer & Swift, of Brockton, Mass., dissolved partnership on January 1st, Mr. A. W. Brewer succeeding.

Nash & Chose, of North Abington and Brockton, Mass., have dissolved partnership, Mr. I. B. Nash taking the North Abington store and Mr. S. F. Chose the Brockton store.

Plan.

New England Pharmaceutical Association.

Organized for mutual protection and profit. One thousand shares, par value $25; total, $25,000. Members of the State Pharmaceutical Association in good and regular standing, and such other pharmacists out of the State as the Board of Directors may accept, are entitled to purchase from one to ten shares, which are transferable only to the treasurer of the Association. Any member of the said Association making application for one or more shares in the Association must fill out and sign the following blank:

[Form One.]

Application for stock in the New England Pharmaceutical Association.

To the Board of Directors:

The undersigned, registered pharmacist , doing business at ——, member of the said Association, desire to become member of the New England Pharmaceutical Association and to purchase —— shares of the stock, and hereby agree to conform to the by-laws of the Association in every particular; and any and all goods I, or we, may at any time purchase from the Association shall be sold at the prices fixed by the Association; and I, or we, further agree to give preference, so far as my, or our, interests permit, to all of the Association goods.

The following are the rules and obligations, to which every member must subscribe:

1. There shall be a Board of 15 Directors with full powers to conduct the Association for and in the interests of all its members, elected as follows:

Three to serve for 5 years, three for 4 years, three for 2, and three for 1 year, and thereafter three to be elected annually to serve for 5 years.

2. From the Board of Directors shall be selected an Executive Committee of five, a President, Vice-President, Treasurer, and Clerk, and from the Association at large an Auditing Committee of three.

3. It shall be the duty of the Board of Directors to receive and examine formulas and samples of proprietary goods; select or formulate, in their opinion, the best of its kind, and arrange to prepare, put up, and pack safely for transportation by freight or express. And this selection and arrangement for manufacturing shall be carried out with each and every article accepted and adopted by the Board.

Each and every package or article thus selected and authorized to be made shall have label, wrapper, or carton, with name and trade mark of this Association thereon, and said labels, wrappers, or cartons shall be furnished at net cost by the Directors, and all goods thus made shall become at once the property of the Association, at prices agreed upon in writing, which prices shall be only enough above actual cost to pay for the labor of putting up and shipping. The Directors shall determine the retail, dozen, or gross price, from which there shall be no variation.

4. Each and every person or firm selected to manufacture and put up any one or more articles adopted by the Board, shall in every case agree to subscribe to

(Form Two.)

I, or we, —— of ——, having been selected by the Directors of the New England Pharmaceutical Association to prepare and put up ——, do hereby agree to prepare and put up all and no more than shall be ordered by the treasurer of the Association; to report at once to the treasurer the quantity put up, which shall be credited to my account; and also report the quantity taken for personal sale, if any, which shall be charged to me, or us, at Association rates.

I, or we, further agree that all goods thus made shall at once become the property of the Association, and subject to the order of the treasurer, but in no case shall a claim for payment be made for the goods until ordered for sale and delivered to purchaser.

5. It is understood and agreed that the differences between the articles or goods thus made and credited to the several makers at prices agreed upon, and the prices which each and every one shall pay for them, are to be divided pro rata among the stockholders, after deducting all expenses and such amount as the Directors may determine as an exigency fund.

6. It is intended to make retail prices of these goods to meet ordinary cut rates; and dozen or gross prices that shall yield adequate returns besides the dividends, which will be dependent upon the amount of business done and the amount, if any, put into advertising.

7. All goods must be ordered from the treasurer, who will direct the maker to ship at once, with memorandum to buyer and also to treasurer, who will send bill, and the buyer must remit by mail his check within ten days of the receipt of goods. Orders in excess of the amount of stock held by the purchaser must be accompanied by cash.

8. While all goods, for the purpose of equal justice and absolute protection, become the property of the Association as soon as made or while in the process of manufacture, and the formulas also, it is agreed that the maker is to hold them subject to order, but not as a claim against the Association. This is deemed a just equivalent for the advantage, if any, in making and putting up the goods.

9. It shall be the especial duty of all officers of the Association to exercise due care and diligence in securing for every member of the Association equal privileges and rights upon all occasions—particularly in distributing a large lot of any popular article, if special terms can be secured.

10. The Directors shall, at the proper time, publish a neat and attractive book for distribution among the stockholders; said book to be for the general advertising of the Association's preparations.

11. The Executive Committee, in addition to their duties as an Advisory Board, shall act as a Board of Trustees, to hold all certificates of stock issued by this Association, and shall receipt therefore as follows:

(Form Three.)

This is to certify that we hold in trust for —— and the New England Pharmaceutical Association certificate of shares in the New England Pharmaceutical Association numbered ——, said stock being held by us as a guarantee of payment of all dues for goods received. And if said —— or his legal representative shall at any time desire to sever his connection with this Association, then the full equitable value of the stock, as determined by us, shall be paid from the treasury of the Association, less any lien for goods there may be upon it, and said certificate shall be cancelled by us and the treasurer.

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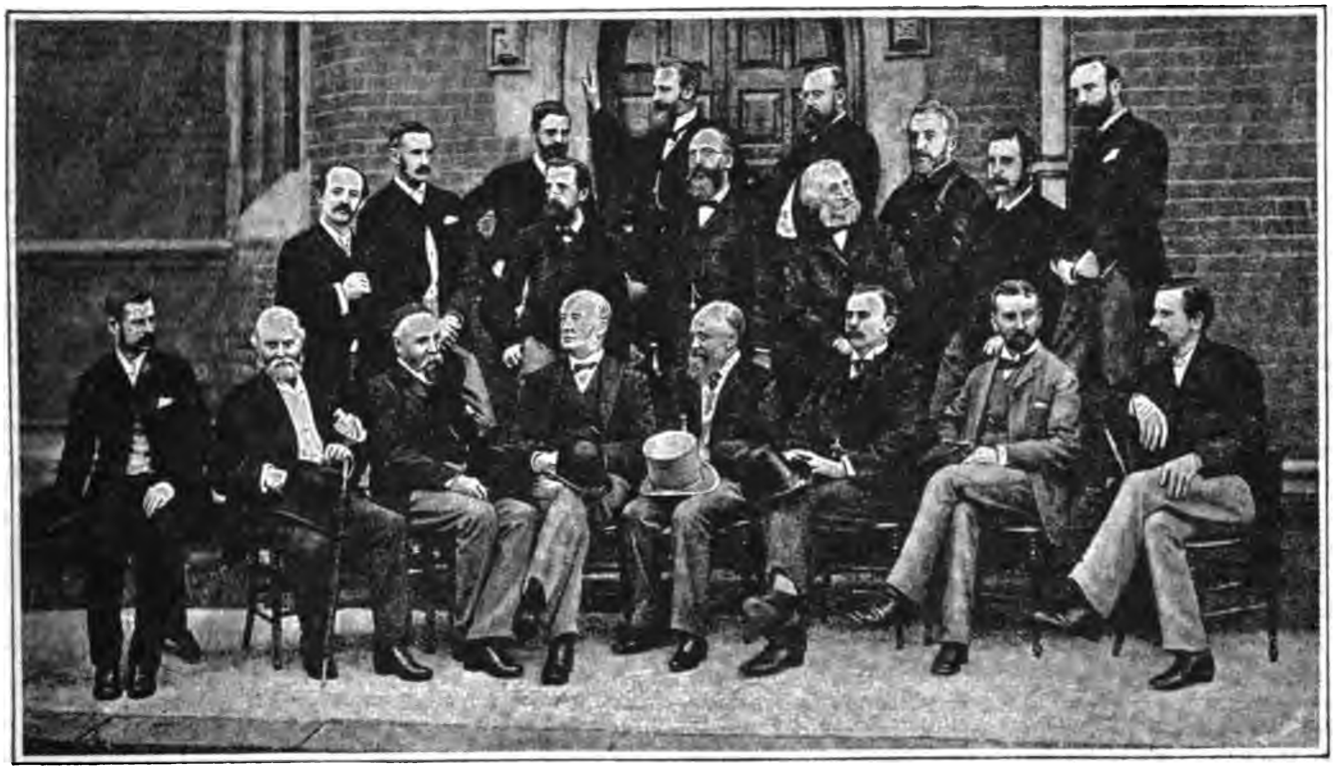

REPRESENTATIVE BRITISH PHARMACISTS.

THE Year-Book of the British Pharmaceutical Conference, lately received, contains a portrait group of some eminent contributors to pharmaceutical science which will be of interest to their numerous friends on this side of the ocean, and which we, therefore, reproduce for their benefit. The gentlemen represented were present at the meeting held at Newcastle-on-Tyne in September, 1889, and were principally officers elected for 1889-90. MR. C. UMNEY, F.I.C., F.C.S., of London, was the President. Messrs. HENRY B. BRADY, F.R.S., LL.D., F.C.C.S., of London; THOMAS B. GROVES, F.C.S., of Weymouth; G. F. SCHACHT, F.I.C., F.C.S., of Clifton, Bristol; RICHARD REYNOLDS, F.I.C., F.C.S., of Leeds; S. R. ATKINS, J.P., of Salisbury; F. B. BENGER, F.I.C., F.C.S., of Manchester, were Vice-Presidents, having also served as President. S. PLOWMAN, F.R.C.S., of London, was also a Vice-President; W. MARTINDALE, F.C.S., of London, was Treasurer; JOHN C. THRESH, M.B., D.Sc., of Manchester, and W. A. H. NAYLOR, F.I.C., F.C.S., of London, were the Honorary General Secretaries; A. W. GERRARD, F.C.S., of London; N. H. MARTIN, F.C.S., of Newcastle-on-Tyne; and F. RANSOM, F.C.S., of Hitchin, were members of the Executive Committee, and LOUIS SIEBOLD, F.I.C., F.C.S., of Manchester, was and is editor of the Year-Book. T. M. CLAGUE, of Newcastle-on-Tyne, was the Local Secretary. M. CONROY, F.C.S., of Liverpool; MR. BARNARD S. PROCTOR, F.C.S., of Newcastle-on-Tyne (whose "Lectures on Practical Pharmacy" have become almost classical), and T. MABEN, F.C.S., of Hawick. Most of these are so well known by their writings as to require no special mention. MR. MARTINDALE has since been made President for 1890–91.

[ORIGINAL COMMUNICATION.]

ELDERBERRY JUICE AS AN INDICATOR.

BY

CLAUDE C. HAMILTON, M.D., PH.G.,

Demonstrator of Chemistry in the Kansas City College of Pharmacy and University Medical College of Kansas City.

THE expressed juice of the fruit of *Sambucus canadensis*, or elder, has a garnet-red color when neutral or acid, but turns green when alkaline. This property led to some experiments by the author as to its value as an indicator in volumetric analysis. These experiments show the elderberry juice to be not only superior to litmus for any titrations, but equal in efficiency to rosolic acid as an indicator in the estimation of ammonia or phosphoric acid. When the indicator is first added to ammonia the color is a "muddy" blue, becoming clearer and of a pea-green color as the acid is added from the burette. This green is brighter and more distinct as the final end to alkalinity approaches, and, when a drop of acid is added in excess, instantly becomes a garnet-red color. The turn of the indicator was exactly at the number of cubic centimeters required to turn rosolic acid yellow, while phenolphthalein gradually faded out at a few tenths cubic centimeters more.

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In titrating the precipitate of $MgNH_4PO_4$ by Stolba's method, the red color appears at just twice the cubic centimeters of HCl required to turn rosolic acid yellow. If the precipitate is dissolved in HCl and the excess measured back by NaHO, the green appears at just twice the cubic centimeters required to turn rosolic acid red. At the point where rosolic acid just turns, elderberry juice has a violet color. Then when the formula is Na_2HPO_4 the elderberry juice is green, and is not restored to acid till the formula is H_3PO_4. The final point is more distinct when the $MgNH_4PO_4$ is dissolved in excess of HCl and the acid measured back by NaHO. The author is engaged on further experiments in regard to the action of this substance with phosphates to determine its practical value.

In titrating carbonates a bluish violet appears at the point when phenolphthalein is just decolorized (without heating), and changes to red at the same point that methyl orange is turned red. The change of color is not very distinct, depending on keeping the solution at a constant temperature. These experiments were made with elderberry wine carefully neutralized with NaHO. The fresh juice may be preserved by addition of one-fifth its volume of alcohol. The author finds it quite efficient in all titrations, unless it be acetic acid, when the colors seem so pale as to be rather indistinct.

Stomach Bitters in the Custom House.

A CLAIM had been made that a certain bitters should be classified and assessed at 50 per cent as a proprietary preparation. The Collector had levied duty on the bitters at the rate of $2 per gallon and 3 cents on the bottle. The Board of General Appraisers holds that the bitters are substantially similar to the spirituous beverages enumerated in paragraph 313, Act of 1883. The label on the bitters recommends it as a drink, whether mixed with ice water or as a flavoring for a cocktail; as a stimulus to the appetite and an aid to digestion, and as a stomach strengthener at all times. The decision of the Collector holding the bitters to be a spirituous beverage is upheld.

[ORIGINAL COMMUNICATION.]

A SIMPLE TEST FOR THE PRESENCE OF LANOLIN.

BY

FRANK T. GREEN,

Instructor in Chemistry, California College of Pharmacy.

SEARCHING for crystals in a patented article consisting mainly of lanolin, I made an ethereal solution—10 drops of melted lanolin to 10 C.c. of ether—and placed a few drops on a slide. Examining the field under a power of 240 diameters, I found sheep's-wool fibres—unmistakable from those of cotton in being firm and rounded, not flattened or twisted. Several samples of lanolin gave like results. Admiring the careful supervision of the chemical department of your journal, I write this fact for the first time, hoping it will be one aid to the searcher in that troubled field—the examination of fats and oils.

SAN FRANCISCO, CAL., February 2d, 1891.

Analysis of the So-called Swiss Honey.

ON most of the hotel tables in Davos, and in fact, generally speaking, throughout Switzerland, will be found a light, brown-colored compound, having the consistence and appearance of what is known in England as "Golden Syrup." The compound in question is, by a pleasant fiction, called *honey;* and the majority of people when partaking of it believe that they are eating *real Swiss honey.* The stuff, however, is a fraud and a sham, and does not contain a particle of honey. It is manufactured in large quantities in various parts of Switzerland, and the subjoined analysis will reveal its true character; and though it may not be absolutely deleterious, it certainly cannot be recommended as an article that should enter into the dietary scale of an invalid; in fact, there may be conditions under which it would prove decidedly harmful, and, if for no other reason than that it is an imposition, visitors should carefully eschew it.

ANALYSIS OF THE SHAM HONEY.

The analysis was made by Mr. Philip Holland, F.C.S.:

Cane Sugar	30.27
Glucoses	41.66
Water	26.67
Ash	00.40
	100.00

SAMPLE OF REAL HONEY.

Analysis made by Dr. Hassall, author of "Food and Its Adulterations," etc., etc.:

Cane Sugar	00.94
Glucoses	79.48
Water	19.56
Ash	00.02
	100.00

In comparing the two samples the reader will note the marked difference in the quantity of cane sugar and glucose. In the Swiss there is 30.27 of cane sugar, while the 00.94 in Dr. Hassall's sample was no doubt accidental. Real honey should consist mainly of *glucoses*, which comes from the Greek word meaning sweet. It is less sweet than cane sugar, and, in fact, is nothing more nor less than the sugar of the flowers from which the bees collect their stores; it can also be extracted from dried grapes and starch, in which case it is called "grape sugar," or "starch sugar."—From the "J. E. M." *Guide to Davos-Platz.*

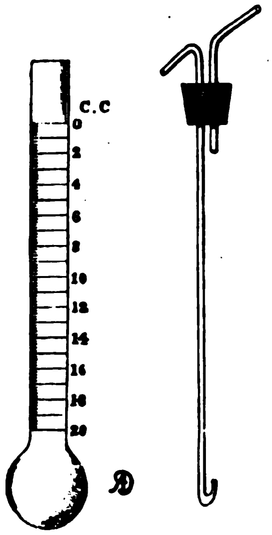
[J. E. M. seems to us hypercritical, and we fail to comprehend why (if the analyses above given indicate the difference between them) an invalid, or any one, who can, with safety, eat genuine honey, cannot eat this artificial honey. We do not approve of sophistication, but speak only upon the question raised by the author.—ED. A. D.]

ROLFF'S MEASURING FUNNEL.

Mr. J. Rolff, of Dornburg, Germany, describes (in *Pharm. Zeit.*) a handy measuring funnel, which has the form shown in the cut. At c a piece of glass is inserted, which permits watching the rising of the liquid. The funnel has a cover to keep out dust, etc., a stopcock, and a shoulder at *f*, which permits it to rest upon the neck of any vessel into which liquid is to be poured. It will be easy for any tinsmith to make such an apparatus.

A PRACTICAL ETHER SEPARATOR.

The separator which was some time ago recommended by Prof. N. A. Viall (and Prof. Caldwell) for removing the ethereal layer from the top of the aqueous liquid in assaying citrate of iron and quinine, may also be employed with advantage—as we are informed by a correspondent—for opium assay, where it becomes necessary to remove the ethereal layer containing the narcotine in solution. This layer is usually poured off, along a glass rod, upon the filter, and, as it cannot thus be entirely poured off, a fresh lot of ether is added, which dilutes the remaining portion, and the whole is again transferred upon the filter. Some operators employ coils of filtering paper to soak up the ether; this requires caution to prevent small crystals of morphine, which usually float on top of the aqueous layer, from being soaked up with the ether.



Viall's Ether Separator.

The apparatus recommended by Prof. Viall is here shown. As originally applied to citrate of iron and quinine, it is used as follows:

Four Gm. of this salt are placed into the glass bulb tube, which is about 8 inches long and divided on the stem into ½ C.c. Next 10 C.c. of water containing 1 Gm. of tartaric acid (to hold the iron in solution) are added, and the salt dissolved by agitation. A few drops of ammonia are then added, and afterwards enough strong solution of soda to fill up the bulb to the lowest division mark on the stem. Next the stem is filled with ether to 0, the orifice closed with a cork, and the contents agitated. When the two layers are separated, the stopper containing the two glass tubes (the longer one of which is turned up at the other end, and the length of which is such that when the stopper is inserted the bend is not entirely immersed in the aqueous layer) is inserted, and, by blowing into the short tube, the ethereal layer is driven over through the other tube into an evaporating dish. It need not all be driven over, since the graduation of the stem will indicate the amount, even if only a fraction has been blown over. But, if desired, the whole of it may be driven over as far as possible, and subsequently a fresh lot of ether may be poured on and separated in the same manner. This latter way is the one recommended in the above-named assay. The ethereal residue is dried at 105° C. and weighed.

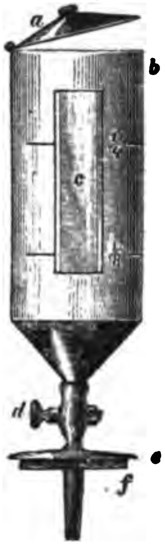
Our correspondent states that he has used a similar apparatus, not graduated, for removing the ethereal layer from the aqueous liquid in assaying opium. The bulb tube which he uses is of such a size that the aqueous liquid, together with the alcohol, ether, and water of ammonia subsequently added, fills the bulb only about one-half. This permits active and energetic agitation, which so greatly promotes the separation of morphine. When the proper time has elapsed (six hours), he carefully fills up the apparatus with ether, pouring it on top of the ether already in the flask, inserts the stopper and tubes, and blows the ethereal layer over. He then pours on a little more ether and removes this in the same manner. Any adhering traces of morphine he removes by washing the tube with the first portion of the aqueous filtrate.

Our correspondent incidentally remarks that he is in the habit of rinsing the flask in which the morphine has been separated, and to the sides of which a good deal of it usually adheres, with the filtrate obtained by pouring the contents of the flask on the filter. [This is, however, not new.] The whole of the morphine may thus gradually be washed upon the filter without introducing any new portions of water, and it is only necessary to make the last washings with water.

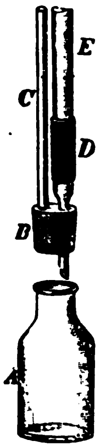
APPARATUS FOR DETERMINING THE SOLUBILITY OF SALTS.

In determining the solubility of salts at different temperatures, the greatest difficulty consists in filtering a sufficient quantity of the solution at the desired temperature. The following-described apparatus has been devised by Fr. Rüdorff to overcome this difficulty:

A little flask, A, about 4 Cm. high and 2 Cm. wide at the bottom—with ground neck and ground stopper—is fitted with a doubly perforated rubber cork carrying a narrow glass tube, C, and a filtering tube, D. The latter is contracted where it passes through the cork, and reaches only a short distance above it, its upper edge being ground smooth. A piece of fine linen is stretched over it, and a piece of rubber tubing slipped over which holds it in place. The projecting part of the rubber tubing is closed by a glass rod. The linen diaphragm acts as filter.



Rolff's Measuring Funnel.



Rüdorff's Apparatus.

If the solubility of a salt is to be determined, a saturated solution of it is prepared at a temperature higher than that at which the solubility is to be ascertained. This solution is prepared in a test tube of such size that the previously described apparatus may be inserted into it. The amount of solution must be enough to permit the apparatus (minus the glass rod) to be submerged. The test tube containing the solution is then introduced into a beaker containing warm water (or other suitable liquid), and standing upon a sand bath heated with a small flame. The contents of the test-tube will gradually acquire the temperature of the water in the beaker, and the latter is carefully regulated by a thermometer. As soon as the desired temperature has been attained, the little apparatus is moved a few times up and down to equalize temperature, and, having been fully immersed, the glass rod is withdrawn for a few moments, so as to admit a little of the liquid of the test tube. The rod is then again inserted. In this way a few drops of the salt solution are filtered into the little flask.

The apparatus is now withdrawn, carefully washed on the outside, the cork with glass tubes removed—care being taken that not a trace of water or other liquid gets into the neck—and the glass stopcock inserted. The total weight of the flask and contents, less tare of flask, gives the weight of the salt solution. And the loss on drying (with stopper removed, of course) gives the amount of water.

If a series of these little apparatuses are at hand, one after another may be immersed in the test tube at varying degrees of temperature. In this way a curve of solubility may be constructed for any substance in a short time.—*Zeitsch. f. angew. Chem.*, 1890, 633.

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Parataloid is the name given by Prof. Koch to his lymph.

The Composition and Constituents of Brandy and Rum.

W. **Fresenius** has had occasion to make an extended investigation of the physical and chemical properties of a number of samples of alcoholic liquors of known purity, and communicates the results, which are of considerable importance, since they show the necessity of altering the hitherto recognized standards, at least so far as this country is concerned.

Eight samples of French brandy were examined. Their specific gravity, at 15.5° C., varied between 0.9314 and 0.9393. Their percentage of alcohol by *volume* varied between 47.51 and 51.63. The following schedule represents the constituents of the eight samples, in 100 *grammes* of each:

Alcohol (deduced from the specific gravity), 40.15 to 44.00 Gm.

Alcohol (determined by distillation), 42.71 to 46.12 Gm.

Extract (determined by evaporating and drying 50 C.c. of the liquid for two and a half hours in a drying oven, the time being carefully observed in each case; a variation from it is liable to lead to discordant results), 0.461 to 1.499 Gm.

Mineral matters (ash, obtained by igniting extract), 0.004 to 0.021 Gm.

Free acid (calculated as acetic and determined by $\frac{1}{10}$ normal alkali), 0.026 to 0.089 Gm.

Matters reducing Fehling's solution:

- (*a*) before inversion, 0.000 (three samples) to 0.771.
- (*b*) after inversion, 0.000 (three samples) to 0.919.
- (*c*) difference, stated as cane-sugar, 0.000 (three samples) to 0.617.

Regarding the detection of caramel, for which Amthor had proposed paraldehyde as a reagent, Fresenius shows that it is not altogether reliable. While it undoubtedly produces a colored precipitate in solutions actually tinted with caramel, yet it also produces varying small amounts of precipitate in some brandies known to be free from caramel.

Concerning the matters reducing Fehling's solution, Fresenius ascribes their source to the casks in which the brandy had been stored, since it was absolutely certain that no sugar had been purposely added to certain of the samples, although they gave reactions for it. They are probably due to tannin and certain coloring matters.

The figures obtained by Fresenius for *rum*, and arranged in the same rotation as those above given, are as follows:

Spec. grav., 0.8735 to 0.8811.

Alcohol volume per cent (from spec. grav.), 73.50 to 76.39.

Alcohol, volume per cent (by distillation), 73.28 to 77.00.

Constituents in 100 *grammes:*

Alcohol (from spec. grav.), 66.22 to 69.42.

Alcohol (by distillation), 66.02 to 69.97.

Extract, 0.339 to 0.680.

Mineral matters, 0.005 to 0.007.

Free acid, 0.089 to 0.139.

Matters reducing Fehling's solution:

- (*a*) before inversion, 0.144 to 0.368.
- (*b*) after inversion, 0.178 to 0.507.
- (*c*) difference, cane-sugar, 0.005 to 0.132.

Prof. Fresenius appends to his report on the results of his examination an exhaustive review of the customary or available methods of defining, distinguishing, or judging the finer qualities of brandy and rum. We take from this those sections which are of more direct practical importance.

According to the generally prevailing notion, *cognac* (brandy) as well as *rum* and *arrac* (a liquor distilled from fermented rice in Java) are supposed to be pure distillates from their respective fermented mashes (wine, sugar, and rice). But it is quite certain that only a very minute proportion of the above liquors, as they appear in the market, actually corresponds to the above definition.

Regarding rum, it is stated by nearly all writers that its dark color is acquired by being long kept in casks. But this is not true. The deep-brown color alone is sufficient to disprove it. Moreover, Prof. Fresenius has received the assurance of those who are personally conversant with the whole process of rum manufacture, that this liquor is always now, and has always been heretofore, colored with caramel. The amount of coloring depends upon the country to which it is exported, some preferring a very dark and others a lighter tint.

One of the by-products of the distillation of rum is a residue left in the still, practically identical with caramel. No doubt it is this which is used for coloring. And the original idea of coloring the distillate may have been caused by the old custom of the original makers, who used primitive apparatus, in which the distillate was no doubt invariably colored by the mechanical spattering over of some of the contents of the still.

In consequence of this custom, it becomes necessary to regard a small proportion of caramel in *rum* as legitimate.

In the case of *brandy* the conditions are similar, but still different. The experiments of Prof. Fresenius have shown that even absolutely pure brandy will extract a comparatively large proportion of extractive from the casks. Much, of course, depends on the quality of the latter. Fauré, of Bordeaux, investigated this subject some forty years ago, and his results are being made use of even now throughout the cognac districts. Staves from the neighborhood of Limoges are regarded as the best for cognac casks. The nature and quality of the wood have a most decided influence upon the contents of the cask. Prof. Fresenius had special occasion to notice this, since he examined several casks filled with the identical brandy, in one of which the contents were rich in extract, deep in color, and appeared to be quite old, while in another they appeared to be sweeter, paler, and younger, but possessed a finer bouquet.

It is the custom to ascribe the depth of color of any brandy to the length of time it has been kept in the cask. A natural consequence of this is that younger brandies are artificially colored in order to impart to them this semblance of age. This addition is probably always practised in the case of the medium and lower grade brands, and, having become firmly established, must probably be accepted as a "commercial custom." If the brandy is otherwise genuine, the presence of a minute proportion of caramel will, therefore, scarcely deserve censure.

While the amount of extract naturally liable to be present in aged brandy is limited, it is becoming fashionable to improve the taste of brandy by the addition of a small proportion of sugar, which, of course, increases the extractive matter. As this addition is universally conceded to result in an improvement of the taste of the brandy, it cannot be objected to. The question is only whether cognac thus "improved" is still to be called or recognized as cognac or brandy, or whether it is to be classed among compounded liquors (cordials, liqueurs). Yet commercial custom has, up to the present, retained the name of cognac for the "improved" article.

The German customs authorities, however, often failed to accept this view. In consequence thereof French exporters adopted the plan of sending the pure, "unimproved" brandy by itself, and, separately from it, the requisite improving liquid (coloring matter, probably accompanied by certain aromatic essences).

In judging of the purity and genuineness of brandy and similar liquids, not only the addition of coloring matter and sugar is liable to raise a question of adulteration, but also the addition of *water* to reduce the alcoholic strength.

It has been shown to be practically impossible for the original distillers to always insure obtaining a uniform distillate. Since too high an alcoholic percentage could, naturally, only be reduced by allowing the brandy to remain very long in casks, and much loss would be incurred thereby, it is now conceded by some leading authorities (Roese, Fresenius), but not by all, that the addition of water, within certain limits, is legitimate.

Some of the most celebrated cognac manufacturers have begun to put their product on the market reduced to 25 to 30 per cent of alcohol by weight. They obtain for this brandy *the same price* as for the stronger one heretofore, and this brandy is actually preferred by certain medical authorities to any other.

A very important statement is made by Prof. Fresenius regarding the effect of *long storage* in casks upon the *alcoholic* strength of the contents. It is very generally assumed—*also in this country*—that long keeping in casks causes a more rapid loss of water than alcohol, and that, therefore, the alcoholic percentage of the liquor increases by age.

He positively denies this, and takes occasion to criticise the proposal of the Pharmacopœia Committee of the German Pharmaceutical Association, who had recommended to require, in the new Pharmacopœia, a spec. grav. of 0.920 to 0.940, and 40 to 50 per cent of alcohol by weight, because—as they themselves stated—when brandy is kept in casks or in wide-mouthed vessels tied over with a bladder or parchment, it loses part of its water and the alcoholic percentage increases.

Prof. Fresenius points out that the committee probably had in mind the well-known fact that alcohol confined in a bladder becomes stronger from loss of water. But this is owing to the circumstance that water alone can reach the outer surface of the bladder by exosmosis, and thereby evaporates, while the alcohol passes through only very slowly.

In wooden casks, both alcohol and water are able to evaporate, and the former, owing to its greater volatility, passes off more rapidly. In a damp atmosphere this difference in rate of evaporation must become much more noticeable. And it is a recognized fact that cognac stored in damp cellars in cool localities, such as Germany, the London Docks, etc., loses its alcohol much more rapidly than in drier and warmer localities, such as the Charente (cognac district of France). In the latter the water evaporates more rapidly than in the cooler localities. But the rate of evaporation of the alcohol seems to be about the same in both cases. Since it has been observed that, though the alcoholic percentage may decrease, yet the total volume of liquid is but slightly altered, it is probable that the stronger alcoholic liquid can attract water from the air, which results actually in an *increase*, not a decrease, of water.

The diminution of alcoholic percentage in brandy under conditions such as prevail in the Charente amounts to about ½ per cent by volume.

While the "improvements" thus far outlined—addition of coloring matter, sugar, and water—are, to a certain extent, allowable, there is another manipulation which goes beyond the limit. This is the addition of *spirit* and the subsequent reduction with water, both of which are very commonly practised upon rum and arrac of the lower qualities [and also of those of brandy].

With this addition of spirit begins a class or series of changes which forms a gradual transition, indefinable as to exact limit, from the genuine to the adulterated brandy and to its absolute imitations, in which latter there is not even a trace of the genuine distillate.

In proportion as the addition of spirit increases and the genuine liquor decreases, there is a diminution of the aroma, which is usually replaced by so-called cognac essences or other aromatic compounds. Moreover, it becomes necessary to add more coloring matter and sugar.

In a note appended to this paragraph, Prof. W. Fresenius points out that the aroma is liable to differ very greatly even in genuine and unadulterated liquors, owing to the difference of soil (in the case of cognac, the kind of grape), the year of growth, and other causes. Besides, the mode of distillation, cellarage, age, etc., are of great influence. The grape originally used for the manufacture of brandy in France was that known as *Folle Blanche*. In more recent times, however, other kinds are used, and furnish a product more or less deficient in aroma. An interesting fact has been communicated to Prof. Fresenius by Mr. Schmoelder, namely, that the best cognac is not always obtained from the best vintages or "wine years," but that even mediocre and inferior vintages yield the best cognac, probably for the reason that a less quantity is required to prepare brandy from a wine richer in alcohol than from one of lower percentage, in which latter the aromatic constituents are present in equal quantity, so that a larger proportion of them finds its way into the distillate.

A portion of the paper is devoted to the discussion of the question whether a brandy which has been compounded or improved by the addition of aromatics and *then* distilled, or has otherwise been manipulated, can justly be regarded as a "distillation product from wine." Some authorities seem inclined to so regard it, while others, among them Fresenius, are of different opinion. The last-named authority also points out—what is otherwise well known—that the judgment of a competent expert regarding the odor and taste of such liquors as brandy, rum, and arrac, affords a better and more accurate criterion of their genuineness and quality than can be obtained by chemical analysis, which, while capable of demonstrating quantitative fluctuations of constituents readily determinable, is insufficient to reach the aromatic and other finer constituents.—After *Zeitschr. f. anal. Chem.*, 1890, 283.

Improved Method of Estimating Glucose.

FOR the estimation of sugar, the solution I use is Fehling's solution, with the addition of a small quantity of potassium ferrocyanide (yellow prussiate of potash), which is added to prevent the precipitation of the red oxide of copper. By this procedure (for which we are indebted to Causse, *Bulletin de la Société de Chem.*, 1889, p. 625) we are better able to see the discharge of the blue color of the copper solution. The apparatus consists of a short burette, terminating in a comparatively wide delivery tube bevelled at the end. The delivery tube of the burette passes through a cork in the neck of a flat-bottom flask of about four ounces' capacity. Another tube, bent at right angles, passes through the same cork, for the escape of steam during the boiling. The burette is graduated in cubic centimeters, and also with a second graduation, representing grains per fluidounces, when 5 C.c. of Fehling's solution are taken.

The process is performed as follows:

Fehling's solution is poured into the burette until it is filled exactly to the 5 C.c. mark, which on the burette is marked F. A 1 to 20 solution of potassium ferrocyanide is added until the 7 C.c. mark is reached. The stopcock is now opened and the liquid allowed to run into the flask. The burette is filled with water, and this is allowed to flow into the flask. The apparatus is now put upon a sand bath or other source of heat, and allowed to come to a boil. The burette is now filled to the zero mark with the urine to be examined, and added carefully until the blue color of the solution in the flask is discharged. The exact point is easily seen. It is only necessary to read off the grains of sugar per fluidounce on the left-hand graduations.

In most cases of diabetes it will be necessary to dilute the urine to about 5 grains per ounce after a preliminary test. This is easily done in the burette. We may simplify the preparation of the solution by adopting the following formula for the preparation of Fehling's solution, which is now usually made in two parts and mixed when needed for use:

SOLUTION No. 1.		SOLUTION No. 2.	
Copper Sulphate	34.65 C.c.	Rochelle Salt	1.73 C.c.
Dist. Water	500.00 C.c.	Caustic Soda	200.00 C.c.
		Potass. Ferrocyanide	50.00 C.c.
		Water	500.00 C.c.

For use mix equal quantities of these two solutions, measured out with the burette. I have had but a few months' experience with the keeping power of solution No. 2, but, so far as I have tested it, there is no reason for not adopting this formula.—E. H. BARTLEY, M.D., in the *Brooklyn Med. Journal*, November, 1890.

Alcohol in Grapes and Grape Juice.

"AMPLOSIA" is the name given to a "pure, unfermented grape juice" which is manufactured by an apothecary in Edenkoben, Germany. It has been analyzed by Fresenius and Eckenroth, both of whom found in it minute traces of alcohol (about one-quarter grain in 100 C.c.), which is, however, not added on purpose, but appears to be a natural constituent. Alcohol has been found, even in larger proportion than that before mentioned, in freshly pressed grape juice (by Fresenius), and Bernbeck and others have reported its presence in the ripe grapes still hanging on the vine.—After *Pharm. Zeit.*

Notes on Antipyrin.

FROM a graduating thesis by Charles W. Hollis, presented to the School of Pharmacy of the University of Michigan, we take the following (after *Pharm. Era*).

Some writers (F. Gay and H. Fortune, *Am. J. Pharm.*, 1888, 60, 413) state the melting point of antipyrin to be quite variable, some samples running as low as 105°, 106°, 107° C., the variation being due to the amount of moisture absorbed. The samples procured were found to be very nearly alike as to melting points, there being only one degree variation.

The first melted at 112° C. and the second at 111° C., the glycerin bath being used in both cases. The first sample was then taken and exposed to a moist atmosphere, the apparatus used being a large beaker containing a sponge well saturated with water, above which the antipyrin was suspended at a suitable distance out of direct contact with the water, the whole tightly closed to prevent evaporation and allowed to remain for about a week, at the end of which time the melting point was found to be 109° C., a loss of 3° C., thus leaving little doubt as to the cause of the variation above mentioned.

At a temperature between 111° C. and 115° C. it begins to volatilize (Pharm. Aust., ed. vii., 1889), and if the temperature is raised still higher a decided odor is given off. The melted crystals were found to deposit in shining pearly plates on cooling, and, when burned on a platinum foil, to give a bright sodium flame, and were completely consumed, no perceptible residue remaining.

If carbolic acid is added to a moderately dilute aqueous solution, an oily liquid separates out, the oily portion settling to the bottom while a milky layer remains at the top (Vulpius). An oily mass is formed (according to P. Vigier) when antipyrin and sodium salicylate are mixed in dry form, the decomposition taking place within a few hours, and on testing the oily mass with litmus paper it is found to be alkaline. The aqueous solution of the two substances was unaffected, no oily substance separating on standing, but on testing it was found to be slightly acid.

Antipyrin is incompatible with sweet spirits of nitre, a marked coloration taking place, in some cases immediately, but in others a longer time is required, some samples tried by the writer taking twelve to twenty-four hours to produce the change. The writer was unable to find any figures giving the specific gravity of antipyrin, and as its solubility renders it rather difficult to select a suitable solvent, it was decided to use its saturated solution at 25° C., the specific gravity of which was found to be 1.0995, and from this was calculated the specific gravity of the dry substance, found to be 1.0782. The following are the reactions of antipyrin with different chemicals and reagents. The general alkaloidal reagents, excepting Mayer's reagent, produce precipitates in moderately dilute solutions (1 : 100):

Picric acid gives a yellow precipitate. Ferrocyanide of potassium gives a white precipitate. Mercuric chloride gives a white precipitate. Tannic acid gives a white precipitate. Nessler's reagent gives a dirty white precipitate. Iodine with potassium iodide gives a chocolate-colored precipitate. Phosphomolybdic acid gives a yellow precipitate.

Heating antipyrin with strong nitric acid in a porcelain dish until reaction commences, and then removing the lamp, gives, after the reaction has ceased, a fine purple-colored liquid and residue, and, on the addition of water and filtering, a red filtrate and a violet-colored residue or precipitate remain (D. Lindo). An aqueous solution is also turned red with a mixture of equal quantities of nitric and sulphuric acids, the same reaction being produced if this acid mixture is added to its alcoholic solution; but a green precipitate, insoluble in water, is formed upon the addition of a few drops of water. In a solution of ether and alcohol (1 : 2) these reactions do not occur until the ether has evaporated (Yacoubian).

A very simple and reliable test is to add a dilute solution of potassium nitrite to a suspected solution of antipyrin, and if it is present a green-colored solution is obtained upon the addition of a few drops of concentrated sulphuric acid. The writer tried a test used by M. Manseau (*Pharm. Era*, 1890, 40), but instead of using 14.39 Gm. of iodine to the liter as was proposed, a $\frac{1}{10}$ N solution was used. One Gm. of antipyrin was dissolved in 100 C.c. of distilled water, and to this 10 C.c. of starch water were added (1 : 100).

The whole was kept at a temperature between 40° to 42° C., according to direction, and the iodine was added drop by drop under constant stirring until there was a persistent blue tint. The average number of cubic centimeters for four titrations was 5.91; but the test was not satisfactory, as it was very uncertain when the required color was reached, and if the temperature was not watched very carefully the number of cubic centimeters was increased to quite a considerable extent. At 50° C. it required 6.3 C.c., and on raising the temperature to 65° C. the color was entirely destroyed and took nearly 1 C.c. more to restore the former color. A very reliable test, after Ed. Blumenbach (see AMER. DRUGG., 1887, 168), and one generally used, is the ferric chloride reagent. When added to dry crystals or powder a dark reddish-brown color is produced, and when the test solution is added to its aqueous solution the following colors are produced:

1 : 100—reddish-brown color.
1 : 10,000—light brown color.
1 : 50,000—yellowish color.

Two drops of fuming nitric acid added to 2 C.c. of a 1-per-cent solution of antipyrin cause a green color, and after heating to boiling, another drop of the reagent gives a red color (Ger. Ph. Commission).

The following five reactions were taken from Dr. Arzberger (*Pharm. Rundsch.*, 1890, 68) and verified:

Twenty drops of a $\frac{1}{10}$ N solution of mercuric chloride added to 10 C.c. of a 5-per-cent solution of antipyrin produce a white, amorphous precipitate, which dissolves upon heating, and upon cooling precipitates again.

Passing chlorine gas into an aqueous solution, a white, flocculent, faintly red precipitate is formed, which is difficultly soluble in water, but soluble in, and crystallizing from, alcohol in small white crystals.

Bromine water added to its aqueous solution causes a yellowish-white, amorphous substance to adhere to the walls of the test tube, which dissolves upon application of heat, with partial decomposition, and upon cooling it is again precipitated, easily soluble in alcohol. A few drops of tincture of iodine added to its aqueous solution cause a reddish-brown, amorphous precipitate to be deposited, which upon application of heat partially decomposes and dissolves to an almost colorless solution, but partially precipitates again on cooling.

A tough, resinous mass is formed when a few crystals of iodine are rubbed with an aqueous solution; this is easily soluble in alcohol and again precipitated upon the addition of water. The only direct test for impurities which the writer could find is given by the Ger. Ph. Commission, viz., the solution in 2 parts of water should be neutral and colorless, or faintly yellowish, free from sharp taste, and not changed by solution of hydrosulphuric acid, this reagent showing the absence of metals.

SUMMARY.

Must be kept in well-stoppered bottles. Occurs in white, crystalline, lustrous tablets or powder, gradually assuming a slightly yellowish tinge on exposure to light; crystallizes from ether in thin plates or scales, and from water and alcohol in needles, if the operation is hastened; but if a saturated solution is allowed to evaporate spontaneously, well-defined crystals of the monoclinic system are formed. Its aqueous solution is neutral to litmus paper and solutions of litmus. If carbolic acid is added to its aqueous solution, an oily liquid separates and settles at the bottom, while a milky layer remains on top.

At about 111° to 113° C. it melts to a clear liquid, which solidifies to shining pearly plates on cooling; and when burned on a platinum foil, it gives off a bright sodium flame, no perceptible residue remaining.

It volatilizes at a temperature between 111° and 115° C., and if the heat is raised still higher a decided odor of partially decomposed antipyrin is given off. It has a mild, bitter taste, and a very faint if any odor, dissolving in its own weight of alcohol and water, one and one-half times its weight of chloroform, and in about fifty times its weight of ether, the temperature being at 15° C. It is also very soluble in amylic alcohol, benzin, glacial acetic acid, and all mineral acids. It has a specific gravity of 1.0782, and its saturated solution at 25° C. has a specific gravity of 1.0995. The general alkaloidal reagents, excepting Mayer's reagent, produce precipitates in moderately dilute solutions. A test solution of ferric chloride added to dry antipyrin, or to a moderately dilute solution (1 : 1,000), gives a decidedly red color. Potassium nitrite, with dilute sulphuric acid or nitrous acid, gives a bluish-green color in the dilute and a green crystalline precipitate in concentrated solutions.

Two drops of fuming nitric acid added to 2 C.c. of a 1-per-cent solution cause a green color, and after heating to boiling another drop of the reagent gives a red color. A few drops of tincture of iodine added to its aqueous solution cause a reddish-brown, amorphous precipitate to deposit, which upon the application of heat partially decomposes and dissolves to almost a colorless solution, but partially deposits again.

The solution in 2 parts of water should be neutral and colorless or faintly yellowish, free from sharp taste, and not changed by solution of hydrosulphuric acid.

A Rapid and Easy Method of Estimating Urea in Urine.

THIS apparatus was designed for the use of physicians rather than chemists. The process is a modification of the well-known hypobromite process, by which the urea is decomposed, with the formation of $CO_2.H_2O$ and free nitrogen. The first two of these remain in solution, while the nitrogen escapes and is measured. The hypobromite solution is usually prepared by dissolving 25 C.c. of bromine and 100 Gm. of sodium hydroxide in 250 C.c. of water. To avoid this tedious and disagreeable preparation, I prepare the solution as needed by mixing, in the apparatus, a 20-per-cent solution of potassium bromide and sodium hypochlorite (Labarraque's solution) in the proportion of 1 of the former to about 3 of the latter. The result of this mixture is a solution of sodium hypobromite and potassium chloride answering in every way the requirements of the process. The two solutions keep well, while the hypobromite solution does not.

The apparatus consists of two parts: first, a graduated pipette, delivering 1 C.c.; second, a graduated tube, about 1 Cm. in diameter and 30 Cm. long, closed at one end and graduated from this closed end throughout its entire length. The graduation is made as follows: A standard solution of urea is prepared containing 10 grains to the fluidounce. With an ordinary gas tube it was found that 1 C.c. of this solution gave 8.2 C.c. of nitrogen. This is about the average urea strength of normal urine. Each 8.2 C.c. on the new tube is then divided into ten principal divisions, and each of these into four smaller divisions. Each of the principal divisions then represents grains per fluidounce when 1 C.c. of the urine is taken.

By a similar method the graduation may be made to represent grammes per liter. The process is conducted as follows:

Holding the ureometer in the left hand, pour in enough of the 20-per-cent solution of potassium bromide to fill it to the fifth division; then add hypochlorite solution to the eighteenth or twentieth mark. The tube is now inclined and water added to the twenty-fifth division. With the small pipette 1 C.c. of urine is now added, allowing it to run down the side of the tube so that it shall mix with the water floating upon the heavier solution below. The open end of the ureometer is now firmly closed with the thumb and its contents thoroughly mixed by inverting it a few times. When the effervescence ceases, which usually takes about two or three minutes, invert and read off the height of the liquid in the tube.

The thumb is now removed under water, the tube depressed to bring the liquid in the tube to a level with the water in the outer vessel, and a second reading taken. The difference between the two readings gives at once the number of grains of urea in each fluidounce, or grammes per liter, according to the construction of the scale. This number multiplied by the number of ounces passed in twenty-four hours in the one case, or liters in the other, gives the amount of urea passed in twenty-four hours, which should be about 500 grains, or 30 to 33 Gm. The instrument may be had of Eimer & Amend.

Experiments made to determine whether the apparatus could be used to determine total nitrogen, after decomposition in the Kjeldahl flask with sulphuric acid, gave good results.

Experiments with ammonium chloride showed that but one-third of the nitrogen was set free from this salt, while the sulphate seems to yield all of its nitrogen.—E. H. BARTLEY, M.D., in *Journ. Amer. Chem. Soc.*, 1890, 283.

Note on the Estimation of Urea by the Hypobromite Method.

Now that the estimation of urea has become a feature in all urine analyses, the following method of calculating results may be found useful to pharmacists who practise analytical chemistry. To those who have not had much experience, the following résumé may be of service.

Method of Analysis.—Fill an Allen's nitrometer with strong brine and arrange as for the analysis of spirits of nitrous ether; place 10 C.c. of the urine, previously freed from albumin, in the cup, turn the tap, and run into the burette exactly 5 C.c., letting the remainder run to waste; pass water through the cup, and tap to thoroughly cleanse them from urine; readjust the tap, and, having placed 10 C.c. of the hypobromite of soda solution in the cup, run 7 or 8 C.c. boldly into the burette, allowing excess to run to waste as before. When the action has somewhat abated, pinch the connecting rubber tubing and slightly shake the burette, allowing it to stand for two or three minutes. Place burette and reservoir side by side, so that the level of the brine in both is equal, read off the number of cubic centimeters of nitrogen, and calculate as under.

The Reagent.—It is essential that the solution of hypobromite should be quite fresh. A convenient plan is to keep a solution of NaOH and add the quantity of bromine as required. The following form may be used: Dissolve 200 Gm. of caustic soda in 500 C.c. of water, and to every 10 C.c. of this solution as required add by pipette 1 C.c. of bromine to form reagent.

Calculation of Results.—Let N denote the number of cubic centimeters of nitrogen evolved by 5 C.c. of sample.

Now, Russell and West proved by experiment that 5 C.c. of a 2-per-cent solution of urea invariably gave 37.1 C.c. of nitrogen at ordinary pressure and temperature; in other words,

$$37.1 \text{ C.c. } N_2 = 0.1 \text{ Gm. urea;}$$

therefore, to obtain the amount of urea in 5 C.c. of the urine, we have

$$37.1 : 0.1 \doteq N : x$$

$$\text{Hence } x = \frac{0.1\,N}{37.1} \text{ or } N \times 0.00269.$$

Therefore, if we multiply the number of cubic centimeters of nitrogen evolved from 5 C.c. of urine by the fraction 0.00269, we will find the quantity of urea contained therein. The percentage of urea is found by multiplying the cubic centimeters of nitrogen with 0.0538. [We have substituted the above method of calculation for that of the author, which is much less perspicuous.—ED. AM. DRUGG.]

To obtain equivalent grains per ounce, multiply percentage by 437.5 and divide product by 100.—S. HENRY SMITH in *Pharm. Journ.*, October 11th.

Trichloracetic Acid as a Caustic.

TRICHLORACETIC ACID ($CCl_3.COOH$) has been found by Dr. A. H. Ehrmann very useful as a local caustic in diseases of the nose and throat, presenting the advantage over chromic acid that its action remains localized and is more persistent. The acid is sent out in colorless rhombohedric crystals, having a slightly pungent odor, melting at 52° and boiling at 195° C., readily soluble in water and alcohol, and deliquescent in air.—*Pharm. Journ.*

New Volumetric Estimation of Phenol, Thymol, Naphthol, and Salicylic Acid.

J. Messinger and G. Vortmann, who are the discoverers of the now well-known antiseptic **aristol** (an iodized derivative of thymol), have found that the principles of the process by which aristol and similar compounds are obtained—viz., treatment with iodine of a strongly alkaline solution of thymol, etc.—may be applied to the quantitative estimation of the above-named substances, and no doubt also of others chemically allied to them.

The requisite volumetric reagents are, a $\frac{1}{10}$ normal solution of iodine and a $\frac{1}{10}$ solution of sodium hyposulphite.

In estimating **phenol** or carbolic acid, the latter must be in alkaline solution. For each molecule of phenol there will be consumed 6 atoms of iodine. The mode of proceeding is as follows: 2 to 3 Gm. of the phenol to be estimated are dissolved in soda so that there are at least 3 molecules of soda present for every molecule of phenol. The solution is then diluted to 250 or 500 C.c. Of this an exactly measured quantity of 5 or 10 C.c. is put into a small flask, the contents heated to about 60° C., and enough of the $\frac{1}{10}$ iodine solution added to render the liquid strongly yellow by excess of iodine. Upon agitation a bright-red precipitate will fall. After the liquid has cooled, it is acidulated with dilute sulphuric acid, diluted to 250 or 500 C.c., and a definite portion (say 100 C.c.) titrated with $\frac{1}{10}$ hyposulphite in order to ascertain the excess of iodine. The actual amount of iodine consumed (in grammes), multiplied by the factor 0.123518, gives the quantity of pure phenol. The factor is derived thus:

$$\frac{\text{1 mol. phenol}}{\text{6 at. iodine}} = \frac{93.78}{759.24} = 0.123518$$

The analytical data furnished by the authors show that this method of estimation is very satisfactory, differences not exceeding 1.2 per cent.

Thymol can be similarly determined, but no heat is required. The precipitate caused by iodine has a brownish-red color. Each molecule of thymol requires 4 atoms of iodine. The amount of iodine actually consumed, multiplied by 0.2956772, indicates the quantity of thymol.

From 0.1 to 0.3 Gm. of thymol is dissolved in soda, so that there are at least 4 molecules of soda for 1 of thymol. The solution is then made up to 250 or 500 C.c., and, except that no heat is applied, treated as in the case of phenol.

Naphthol (*beta*).—This yields, under the same conditions, a dirty-green precipitate. Here also 4 molecules of soda must be taken for every 1 molecule of naphthol. The amount of iodine actually consumed must be multiplied by the factor 0.37843106. In the case of naphthol, the solution must be heated to 50° to 60° C. Otherwise the method is the same.

Salicylic Acid.—This may be estimated either alone or when mixed with benzoic acid, the latter not entering into reaction. In this case, also, 4 molecules of soda must be taken for every molecule of the acid. On adding the $\frac{1}{10}$ iodine solution to the solution of the acid warmed to 50° to 60° C., a precipitate should not be formed at once. Only after iodine is present in excess, and the liquid has been again slightly warmed, is there produced a bright-red precipitate, which increases in quantity after acidulation. If too small a quantity of alkali was present, a yellowish-white precipitate is formed before iodine is present in excess. Should this happen, more alkali is added until this precipitate disappears, after which the addition of the iodine solution is continued. The factor with which the quantity of iodine actually consumed must be multiplied is 0.18132606.

The alkali which is used in these processes must be free from nitrite. If not, the latter must be determined separately by means of the $\frac{1}{10}$ iodine solution, and the proper correction made when the alkali is employed.

Calculations of the results obtained by the above processes may be saved by the following consideration:

Let f denote the factor with which the quantity of iodine must be multiplied in each case, and t the titer—that is, quantity of iodine in 1 C.c.—of the iodine solution; then the product $f \times t$ at once shows the quantity of phenol, etc., in grammes, which corresponds to 1 C.c. of the iodine solution.—After *Berichte*, 1890, 2753.

English as She is Wrote.

The *Chemist and Druggist* quotes a choice specimen of Continental English from a so-called "trade journal" brought out by a German firm in Brussels, which our readers will no doubt enjoy:

It is to be a universal review of modern inventions "vulgarizing of the practical inventions industrial and commercial publicity"; and it appeals to advertisers for support on the grounds, among others, that, "indeed, a newspaper treating only one industry should be readed only by the specialists, while our Revue, diffused in all the branches, is indistinctly (sic) readed by all the traders which may purchase engines, frames, etc.; instal the electricity, use chemical products which occupy themselves of photography, etc. We permit ourselves of offer you our publicity which is very efficacy, our working being 10,000 numbers sent to the traders of the country and to the principal firms of the foreign."

[The translation has evidently been made by a Frenchman, since it teems with gallicisms.—Ed. Am. Drugg.]

The Estimation of Nitrites in Potable Waters.

Probably no analyst feels that he has made a complete examination of a water unless he has at least made a qualitative test for nitrites, and if he finds indications of their presence he justly regards the water with suspicion, but uncertain what further inference to draw, as a quantitative examination is rarely made. Though this quantitative analysis, therefore, does not seem to be a matter of much importance in the present state of our knowledge, a series of experiments I am now making on the changes in composition of certain waters, by keeping under varied conditions, lead me to believe that ere long the study of these changes will be of great aid in enabling us to judge of the quality of a water, and especially of those waters which at the present time the chemist or medical officer can only state to be suspicious. One of these changes, and one of the most easily followed, is the variation in amount of nitrous nitrogen. As an example I will quote that of the most extreme case I have yet met with. A water which from a mere chemical analysis would have been passed as "usable," when examined soon after drawing from the pump showed no trace of nitrites. Three days after it contained no less than 35 parts of nitrous nitrogen per liter, and on the sixth day after it was again free from nitrites.

Other changes proceeded *pari passu*, and these, together with a bacteriological examination, proved the water to be seriously contaminated.

It was when commencing this investigation that the want of a simple and reliable quantitative test for nitrites made itself felt.

The metaphenylene-diamine and the naphthylamine tests were fairly tried, but did not answer my purpose, neither did titration with potassium permanganate. In working out the process for determining the amount of dissolved oxygen in water which I described early this year in a paper read before the Chemical Society, the action of nitrous acid on potassium iodide in the presence of a varying proportion of free oxygen was determined, and the results led me to believe that after all the old potassium iodide and starch test for nitrites could be made a reliable colorimetric quantitative one for water analysis. The results of my experiments having this as their object may be summarized as follows:

1. With the same proportions of acid, starch, and potassium iodide, the rapidity with which the blue tint is developed, and the depth of tint, vary with the degree of oxygenation of the water.

2. The depth of tint increases with the time which elapses between the addition of the reagents and the observation. This is due to the fact that the NO liberated is acting continuously as a carrying agent between the oxygen dissolved in the water and of the air in contact with the surface of the fluid, and the hydric iodide, liberating an equivalent of iodine corresponding to the oxygen carried.

3. The effect of temperature is such that comparisons cannot be made unless the fluids are within 2° or 3° of the same temperature. Thus, *e.g.*, at 65° F., in very weak

solutions, the color is not developed so rapidly as at 60° F., *cæteris paribus*.

4. With the same proportions of starch and iodide, and in samples fully oxygenated, etc., the coloration varies with the amount and nature of the acid used.

5. The amount of potassium iodide added affects the result considerably. The larger the proportion of iodide, within certain limits, the greater the rapidity of the reaction.

6. The quantity and nature of the starch solution are also factors requiring recognition. If too large a proportion of starch be added, a marked reddish tint is first developed instead of the blue tint, and this reaction is still more marked if the starch solution has begun to change by keeping.

7. When all the above factors are constant, then the rapidity with which the blue tint is developed, and the depth of tint, vary directly with the amount of nitrite present in the water.

I need not trouble you with the account of the numerous experiments upon which these conclusions are based, nor of the further investigation conducted to ascertain how the information so obtained could be made available for rendering the iodine and starch reaction reliable as a quantitative test. I will merely give you now an account of the reagents required, and the mode of conducting the analysis which I have found to give the most satisfactory results.

REAGENTS.

1. *Solution of Starch and Potassium Iodide.*

Starch in powder	0.2 Gm.
Caustic Potash	1.0 "
Potassium Iodide	2.0 "
Water	200 C.c.

Add the starch to 10 C.c. of water, and when uniformly diffused add the caustic potash. Dissolve without the aid of heat, and add the remainder of the water and the potassium iodide. Strain or filter. This solution keeps for months without appreciable change. One C.c. is required for each determination.

2. *Dilute Sulphuric Acid.*

Pure Sulphuric Acid	1 vol.
Distilled Water	3 vols.

This is the same strength as used for the permanganate test, and I always employ it for both purposes.

3. *Solution of Sodium Nitrite.*

Sodium Nitrite	0.493 Gm.
Water	1 liter.

Dissolve.

One C.c. = 0.1 Mgm. nitrogen.

Apparatus.—Two or more 50 C.c. Nesslerizing cylinders.

Process.—Shake the sample of water vigorously in a bottle only partially filled, to saturate with air; pour 50 C.c. into the cylinder, and add 1 C.c. of the starch and iodide solution, and afterwards 1 C.c. of the dilute acid; stir. Assuming the temperature to be about 60° F., if a dark blue tint develops instantaneously the water contains more than 1 per million of nitrous nitrogen. If it becomes blue in a few seconds, it contains about 0.1 per million. If it requires more than ten seconds to develop, it contains less than this amount. If the blue color appears instantly, the water must be diluted with known proportions of nitrite-free water (saturated with air) until it is found by experiment that the color takes a few seconds to develop.

With a very little experience the approximate amount of nitrite present can be ascertained with considerable precision by these simple preliminary experiments. Now prepare a standard solution of sodium nitrite by diluting 1 C.c. of the strong nitrite solution with 200 C.c. of water. One C.c. of this weaker solution diluted to 50 C.c. corresponds to 0.01 Mgm. nitrous nitrogen per liter.

Measure into the Nessler glasses varying quantities of this dilute nitrite solution and fill up with water. Now take 50 C.c. of the water to be examined, or of the diluted water if dilution were found necessary, and to each add successively 1 C.c. of the starch and iodide solution and dilute acid, and note how the blue tint develops. If none of the solutions correspond with the water, a fresh series must be prepared. In this way, in a very few minutes, the amount of nitrite in any sample of potable water can be easily obtained with a very considerable approach to accuracy.

Since I commenced employing this test I have analyzed over 180 samples of water, 51 of which contained nitrites varying from 0.005 to 3.4 parts nitrogen per million; and I have had no reason to suspect inaccuracy from the interference of other constituents in any single case.

To render the process more intelligible I will give details of two determinations. Two solutions were prepared for me by an assistant and marked "*a*" and "*b*" respectively.

(*a*) Fifty C.c. + reagents gave a blue tint in about ten seconds. It was therefore about the proper strength for estimation.

Ten C.c. of the dilute nitrite solution were diluted to 50 C.c. and compared with the sample. The color seemed to develop a little more rapidly, but the difference was not very marked. Three solutions were prepared by diluting 5, 7, and 9 C.c. respectively of dilute nitrite solution to 50 C.c.

5 C.c. = 0.05 N per million; too weak.
7 C.c. = 0.07 " "
9 C.c. = 0.09 " too strong.

Another solution containing 0.08 N per million was then made and compared with the sample; the blue tint developed a little more rapidly. The strength was certified to be 0.075 N per liter. The actual strength was 0.07 per liter.

(*b*) Original water gave a dark blue instantly.

Diluted to $\frac{1}{10}$ a pale blue instantly.

Diluted $\frac{1}{25}$ color developed in a few seconds.

Compared $\frac{1}{25}$ with 0.05, too weak; and with 0.10, little too strong.

Now compared with 0.08—too weak.
" " " 0.09—about right.
" " " 0.10—too strong.

0.09 + 25 = 2.25 N per liter. The actual strength was said to be 2.5 N per liter.

The following results may also be quoted as fair examples of the accuracy obtainable:

	NITROUS NITROGEN PER LITER.	
	PRESENT.	FOUND.
1	0.1 per million.	0.10 per million.
2	0.625 "	0.65 "
3	0.625 "	0.625 "
4	0.093 "	0.095 "
5	0.01 "	0.01 "
6	0.05 "	0.05 "
7	0.125 "	0.13 "

The time occupied by a determination is usually about five minutes, the reagents are easily made and preserved, and the necessary conditions easily observed.

I can, therefore, recommend the process to such as may desire at any time to estimate the nitrites in potable waters.—JOHN C. THRESH in *Pharm. Journ.*, September 20th.

* * *

The Action of Cod-Liver Oil.—Drs. Gautier and Mourgnes, in a recent communication to the Academy of Sciences, discuss at some length the reasons why cod-liver oil is superior to other fats as a therapeutical agent, and arrive at the following conclusions: 1. It is more easily assimilated, owing to its containing free fatty acids and some biliary matters which render its emulsion specially easy when it comes in contact with the pancreatic juice. 2. It is rich in phosphates, phosphoric acid, lecithin, and phosphorus in organic combination; the phosphorus, especially in the last-mentioned form, is very readily assimilated to form protoplasm, and thus nutrition is greatly stimulated. The small amounts of bromine and iodine being also present as organic compounds exercise a beneficial influence on the general metabolism. 3. The alkaloids present—butylamine, amylamine, morrhuine—and morrhuic acid stimulate the nervous system, increase the amount of sweat and urine, and act as a nerve tonic.—*The British Medical Journal.*

Oxynaphthoic Acid.

This acid has been reported by Luebbert to have nearly five times the antizymotic power of salicylic acid. It is not used internally, but only as a disinfectant, either for the toilet or for wounds and purulent cavities. Helbig has used cotton containing 1.75 per cent of the acid. He prepared it by dissolving 3.5 parts of the acid in 250 parts of alcohol, adding 50 parts of glycerin, tinting the solution with fuchsin, and then impregnating 200 parts of cotton with the whole liquid. By exposure in a warm room the alcohol will evaporate.

The acid is prepared by starting from alpha-naphthol sodium, and passing a current of carbonic acid gas through it, under pressure, at a temperature between 120° and 140° C. The resulting sodium salt of the new acid is then decomposed by a mineral acid.

Hydrofluoric Acid as an Antifermentative.

That hydrofluoric acid is a powerful antifermentative has long been known, but a practical use of this property has until recently been made only on a small scale. Some years ago an English analyst proposed to preserve specimens of milk, intended for analysis, by adding to them a minute quantity of hydrofluoric acid, which was, indeed, found to be entirely efficacious. Effront has now made use of this fact for preventing the development of too large an acid fermentation in mashes from which spirit is to be distilled. It has been found that the formation of lactic acid can thus be either retarded or entirely suppressed, and that of butyric acid is still more energetically resisted. In consequence of this, the alcoholic distillate is found to be much purer and less contaminated with odorous principles, fusel oil, etc.

Detection of Sulphuric in Chromic Acid.

Chromic acid is now supplied by several foreign makers in an exceedingly pure condition, being practically free from sulphuric acid, the presence of which heretofore caused the commercial chromic acid to be deliquescent. The last German Pharmacopœia introduced the pure acid, and this will no doubt be done also by others. The test for absence of sulphuric acid is given as follows by the authority just quoted: "The aqueous solution of chromic acid (1 in 100), when acidulated with hydrochloric acid, must not be altered by solution of nitrate of barium." Dr. H. Warnecke now points out (in *Pharm. Zeitung*) that this test is misleading, since notable quantities of sulphuric acid may thus be overlooked. Barium *chloride*, not nitrate, should have been directed. A chromic acid solution contaminated with sulphuric acid, so that the above test (with barium nitrate) will not show it even on standing for several hours, will at once become turbid if barium chloride is used.

Preparation of Absolutely Pure Hydrobromic Acid.

In the course of a research on the atomic weight of copper, Theodore W. Richards had occasion to prepare bromide of copper in as pure a state as could possibly be accomplished, and for this purpose it was necessary to prepare not only metallic copper as free from other elements as possible, but also perfectly pure hydrobromic acid. The copper does not concern us here, though we may state that it was impossible to obtain it of absolute purity. But the contamination, visible even to the naked eye, upon the galvanically separated copper film was so minute that it did not affect the results. Regarding the acid, we quote the author's own words (after *Chem. News*, January 9th):

The next step taken was the preparation of hydrobromic acid pure enough to serve as the basis of research. The acid was made from pure potassic bromide and sulphuric acid, according to the method recommended by Dr. Squibb. It was then purified by repeated fractional distillation, at first in a large platinum retort, and afterward in one of glass, it having been ascertained that the gold used as a solder in the former apparatus was attacked during the process. It was subsequently found that the action of the acid even upon glass was not imperceptible; but as the same retort was used in all later distillations, and as the glass was of good quality, this unavoidable cause of impurity was reduced to a minimum. The acid was distilled in all ten times—seven times over potassic bromide, twice over silver bromide, and once alone—each time the first and last portions of the distillate being rejected.

A specimen of the wholly colorless product was preserved for over a year without perceptible change.

The purity of this acid was checked by combining it with a known quantity of absolutely pure silver, specially prepared for the purpose.

It is, of course, unnecessary to employ acid of such a degree of purity in medicine. Nevertheless, the author's method may be wholly, or at least partly, followed when an acid of special purity is required. It is interesting to note that the author observed the acid to act slightly upon glass.

An Improved Method of Estimating Theine (Caffeine) in Tea.

G. L. Spencer has found that all the existing methods for estimating theine in tea are capable of improvement. He remarks, quite correctly, that the quantity of theine is no reliable criterion of the value of tea to be used for beverage. Nevertheless, it will often aid in showing the presence of exhausted or spurious tea.

The author's method is but little shorter than that devised by his predecessors, but he claims for it greater accuracy. He describes it as follows:

Transfer 3 Gm. of very finely powdered tea to a 300-C.c. flask; fill the flask with hot water nearly to the neck; add a small fragment of tallow to prevent foaming; heat gradually to ebullition, and maintain this temperature half an hour. Small particles of tea adhering to the neck of the flask should be washed down with a few drops of water. After boiling, cool and add subacetate of lead in slight excess. The amount of the reagent required may be determined by the ease with which the precipitate separates.

Approximately 0.3 C.c. concentrated lead solution is required per gramme of tea. After the addition of the lead solution, complete the volume to 300 C.c., and shake the flask to mix its contents thoroughly; filter off 100 C.c. of the solution into a sugar flask—*i.e.*, a flask graduated to 100 and 110 C.c.; precipitate the excess of lead with hydrosulphuric acid, employing ether to prevent foaming; heat to expel excess of the reagent, cool, and complete the volume to 110 C.c. The extra 10 C.c. permit washing the gas-delivery tube.

Filter, transfer 55 C.c. of the filtrate, corresponding to 0.5 Gm. of tea, to a separatory funnel, and extract seven times with chloroform. The chloroform solution of the theine is collected in a tared flask, and the solvent removed by distillation and drying. The temperature at which the latter is accomplished should not exceed 79° C. The theine obtained is very pure, and contains 1 molecule of water of crystallization. It may be noticed in the above method that all washing of precipitates is avoided. A slight error is introduced through the non-removal of the tea residue and the lead precipitate, but this will rarely if ever exceed about 0.02 per cent. A second error results from leaving the lead sulphide in the sugar flask; but this is extremely small, if care has been taken in adding the lead subacetate.

If preferred, the lead may be removed without the use of the sugar flask, a definite volume of the solution being taken for this purpose. In this case the precipitate requires washing. It is preferable to follow the method as first described, as in this way the volume of the solution in the funnel will not exceed 55 C.c., a large volume being objectionable through the possibility of a portion of the alkaloid remaining in water solution.—*Journ. of Analyt. Chemistry*, iv., Part 4.

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Why is this Necessary?—An effort is being made in Georgia to prohibit physicians, and prescription clerks in drug establishments, from pursuing their professional calling, who may become intoxicated from the use of liquors and opiates.

THE

American Druggist

AN ILLUSTRATED BI-WEEKLY JOURNAL.

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EDITORIAL.

THERE is no question which now receives so much attention from pharmacists in this country as that of cutting prices on goods and the ways for preventing the evil. It would be difficult to recite the numerous plans which have been proposed to accomplish the needed reform, and still more laborious to enumerate all the conditions which have led up to the demoralization of the retail drug business which makes some action necessary. The gravity of the situation in some sections may be aptly illustrated by the story told by a returned hunter, who, among other marvellous things, said that his dogs, after chasing a woodchuck for several miles, finally ran him up a tree Whereupon one of his auditors, having kept his peace thus far, objected that "a woodchuck can't climb a tree." Nothing abashed, the narrator replied: "*This* woodchuck *had to*, by gosh!"

One may not be able just yet to understand how the evil of cutting rates is to be avoided or abolished, but it nevertheless remains that *it's got to be!*

Some time since the drug trade was apparently stirred to its depths by the agitation of this question, but we venture the prediction that it was a passing squall compared with the gale which is soon to blow.

Whenever the retail trade are ready to unite upon the support of any measure for the prevention of price-cutting, they will readily overcome the difficulties of its enforcement, no matter what the measure may be. It may require greater unanimity and more prolonged effort to work some schemes than may be requisite for the working of others, but work they *must*—one or the other; and the sooner the Section on Trade Interests of the American Pharmaceutical Association gets the necessary machinery at work for the elaboration of *a* plan, the sooner will the reform be accomplished. The journals of the trade may serve for an interchange of views, and for comparing the results of the different measures attempted in various sections of the country, but a standing committee of representative retailers must be the body which works out the scheme.

We have one suggestion to make: As in the treatment of disease the study of its causes and the essential factors in its pathology *must* precede its rational treatment, so in this case any measure of reform, to be of lasting benefit, must be preceded by an understanding of the conditions which have given rise to the present deplorable state of the retail trade. Then any measure adopted for its relief will be likely to be founded upon correct principles, and comprise details which may, perhaps, be varied somewhat to adapt them to the needs of particular localities. Without some such underlying principle of general application, any measures adopted are likely to prove either practically valueless or of only temporary utility.

There will be no lack of reformers with projects which they will guarantee to accomplish the desired end, but which, upon sober consideration by a competent committee, will be found to resemble the oft-invented machine for achieving perpetual motion. So, too, there will be no lack of fault-finding and adverse criticism of any scheme which may finally be adopted; but let it be understood that no human workmanship is perfect or incapable of improvement, and that the success of any scheme will be due less to the perfection of the instrument than to the degree of unanimity with which it is applied. Let the committee do the best it can to approach perfection in the plan it finally recommends, and then let the retail trade give it hearty and earnest support, and the thing will *go*. Later on the plan can be modified in its details—if perchance there should remain any price-cutting necessitating it, which we doubt, since *the unanimous, or nearly unanimous, attitude of the retail trade toward* SOME *plan, rather than the actual details of the plan itself, will bring about the result desired.*

UNDER the heading of "Information Wanted," on another page of this issue, our readers will find abundant opportunities for appreciating the variety of questions which an editor is called upon to answer. It has occurred to us that we may be doing a double favor by allowing others to answer them. If it be acknowledged to be "more blessed to give than to receive," we have been monopolizing a goodly proportion of this particular kind of blessing for many years past; but we assure you that it has been without any intention of being selfish. If those who have any wish to increase the general or individual stock of information by answers to these conundrums will have the goodness to address their answers to us, we will give them public acknowledgment in the next succeeding issue (unless they express a desire to remain anonymous), and forward their answers to the persons making the inquiry. We shall place as few restrictions as possible upon the nature of questions and replies, having regard only to the general interests of our patrons.

IN this connection we ask the attention of foreign manufacturers to queries 2,510, 2,512, and 2,513, and suggest that greater attention to the advertisement of their wares in the trade journals of this country might be to their pecuniary advantage.

Our intention and habit has been, when publishing notices of new apparatus and materials, to accompany these with information which would enable our readers to correspond with the maker or vender of the article referred to, but in a large proportion of instances the sources of our own information were defective in these particulars. This has resulted in numerous letters of inquiry addressed to us, which we have very often been unable to answer without much trouble and correspondence. It has been customary with us in some cases to refer our correspondents to one or another of our advertising patrons most likely to be in communication with foreign dealers, but they, too (as in No. 2,512), have been unable to get satisfactory replies in many instances.

Our ingenious and enterprising friends in Germany seem to be particularly and phenomenally modest in such matters, and, having produced a good thing, proceed at once to secrete themselves in such a way as to prevent anybody from asking them questions about it or purchasing it when it is in the nature of a commodity. We tender to such the opportunity and advantages afforded by our advertising columns, and will cheerfully convert their German into the most attractive Americanisms of which we are capable.

As for the matter of translation, it is hardly essential, for, next to the two largest cities of Germany, the largest German-speaking communities are in the United States, and the proportion of German-speaking persons in the drug trade is very large indeed. In many towns they form the majority of those engaged in the business. It may be that it was an Americanized German *Apotheker* who wrote to his brother in the *Vaterland:*

> "*Oxcose me dot I schribe you in Englische. Ich bin*
> *so lange hier im Staat Wisconsin gewohnt, dass*
> *Ich habe already twice gevoted!*"

One may well believe that he might still have retained sufficient remembrance of his Teutonic vernacular to enable him to understand a German advertisement in the original text, especially if it were well "displayed" and printed "loud."

We beg the attention of our readers to the meeting of the American Pharmaceutical Association at New Orleans on the 27th of April, and urge the importance of immediate work upon any papers that they may have in contemplation. Work of this character, prepared with care and method in advance, will be much more satisfactory for the Association and creditable for the author than something devised in a hurry and presented without revision. The Association has been fortunate thus far in the quality of the majority of papers brought before it, and as time goes on the standard of excellence will become still higher. It is not essential that every subject should be of the first importance—if it were possible; but the dignity of the body should discourage crude work on any topic, and a comparatively trivial subject may, by careful and thorough elaboration, be made to assume a character that will render it very worthy of consideration.

Those who have read that most delightful book, Michael Faraday's "Chemistry of a Candle," need never despair of achieving a success if they will imitate the painstaking habits of its author. There is not a process within the daily experiences of the most humble pharmacist about which there does not remain something to be learned by patient observation; and it is more often than otherwise the man who puts his mind to such subjects who confers the greatest good upon his fellows and acquires the greatest profit for himself. Don't despise the minor topics, but elaborate them with honest work, and you will acquire the knowledge which will enable you to handle others of greater intricacy and importance.

George C. Close, of Brooklyn, N. Y., died on January 13th at the age of 79 years. He was one of the first graduates of the New York College of Pharmacy, and for years had acted as one of its trustees.* He held office as its vice-president and president, and was distinguished as most faithful in discharge of official duties. Since 1858 he was a member of the American Pharmaceutical Association, and a frequent attendant at its meetings. He was greatly beloved and respected by all who knew him.

IODIZED CARVACROL.

A substitution product derived from carvacrol, in which part of the hydrogen is replaced by iodine, has been patented by Fr. Bayer & Co., of Elberfeld. It is expected to be enrolled among the substitutes of iodoform, and will probably appear under a specially coined name. According to the German Patent No. 53,752, a dilute solution of 1.5 parts of carvacrol (see below) in alkali (1.6 parts of soda) is treated with 10.16 parts of iodine and the same quantity of iodide of potassium, care being taken to keep the solution alkaline. The yellow precipitate which results is washed and dried. It is a yellowish-brown powder, insoluble in water, difficultly soluble in alcohol and readily in ether, chloroform, and olive oil.

Carvacrol is derived from carvol, the oxygenated, odorous constituent of oil of caraway, which is separated from other constituents by fractional distillation. To prepare carvacrol, 100 parts of carvol (obtainable in the market under the name of "quintessential oil of caraway") are diluted with 100 parts of ordinary oil of caraway, the mixture placed into a flask together with 24 parts of glacial phosphoric acid (in lumps free from phosphates), and heated to boiling, under a return condenser, during four hours. The liquid, which is at first as colorless as water, gradually turns dark, due to the formation of some resin, and at the close of the reaction has a deep reddish-brown color. After the source of heat is withdrawn, the viscid liquid is poured, while still warm, from the flask. If this is not done, the latter will break when the phosphoric acid solidifies. The oil is filtered and then distilled, the portion boiling between 232° and 237° C. being collected separately. This is repeated several times, until pure carvacrol is obtained, boiling at 237° C. It is a viscid oil, congealing at −20° C., and becoming liquid at 0° C.

OZONE WATER.

A German patent was taken out last year by Dr. Graf, of Berlin, for a method of preparing a permanent ozone water.

It depends upon the addition of a small quantity of sodium or magnesium chloride to an ozone solution prepared by passing ozonized oxygen through water, or to the water before the solution of the ozone is effected.

At present ozone water is manufactured in this city by a process devised or improved by Siemens. We have had occasion to examine the factory, process, and product, and believe that the latter will be introduced into various important technical processes in a short time.

An ozonized oil, likewise prepared by the same company, is now being experimented with in one of the public hospitals. It has been so far found a most effective agent for destroying the bad odor arising from ulcers and similar sores.

ACETIC ETHER AND DIETERICH'S OPIUM ASSAY.

One of our correspondents writes that, on trying Dieterich's opium assay, in which acetic ether is used in place of ethylic ether, he obtained scarcely any morphine at all, although the opium he tested was afterwards found to contain over 12 per cent of the alkaloid.

The reason of the failure of our correspondent was simply the poor quality of the acetic ether he used. We have so far seen but little acetic ether on this market which would pass strict muster. Most of it is contaminated with alcohol (sometimes a large proportion), also with water. We might suggest to our correspondent to purify the commercial product by mixing, say, 20 fluidounces of it with 5 fluidounces of water, shaking thoroughly, and then allowing the layers to separate. The upper, ethereal layer is now removed, and must be deprived of water, which is best done by means of fused chloride of calcium. The remaining liquid is then carefully distilled. If the original acetic ether was practically free from alcohol and only contained water, shaking it with water will but slightly increase the aqueous layer. If, however, alcohol was present, the aqueous layer will be more voluminous.

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Section on Scientific Papers of the American Pharmaceutical Association.

The meeting of the Association this year in New Orleans furnishes an opportunity for reports on subjects of great interest to members from other localities and of importance to pharmaceutical literature. As in the California meeting in 1889 many subjects of local interest were reported, so the region tributary to New Orleans furnishes many subjects, possibly considered of little importance at home, but to the majority of pharmacists throughout the country, as well as abroad, both interesting and instructive.

The tropical climate of portions of Florida and the West Indies, the adjacent territory of Texas, Mexico, and Central America, furnish many substances of which little is known, but possibly of great interest to the arts and to pharmacy—indigenous plants of local reputation, medicinal substances which may be of considerable value.

The cultivation of the trees of the citrus family, the orange, lemon, and lime, also of the eucalyptus, with the production of oil and other substances from these, would be exceedingly instructive to persons residing in other localities.

Reports upon the condition and prospects of pharmacy in the extreme South would also no doubt be interesting.

Papers should be received by the committee not later than March 15th.

The Committee on Scientific Papers of the American Pharmaceutical Association is now completing the list of queries to be published shortly.

Owing to the next annual meeting of the Association being held earlier in the year than usual, the time for the compilation of queries, as well as for the preparation of papers in answer to these, is necessarily limited and more brief than in former years.

Members and others interested will, therefore, aid the committee in transmitting subjects for the queries at once, and also advise its officers as to contemplated contributions to be ready by March 1st next.

Fraternally,
E. L. Patch, *Chairman*,
109 Green Street, Boston, Mass.
Greenleaf R. Tucker, *Associate*,
C. S. N. Hallberg, *Secretary*,
69 Dearborn Street, Chicago.

INFORMATION WANTED.

Our *readers will confer a favor by answering any of the following questions and referring to them by number. We will undertake to forward the answers to inquiries when the request for information is accompanied with a directed envelope and postage. The names of the respondents (unless otherwise indicated) will be published in the next issue of the journal.*

2,497.—Composition of **Dr. Tucker's No. 59.**

2,498.—Composition of **Nail-Bleach** (sometimes called "**Ongoline**"), used by manicures to render finger nails white. It is an amber-colored liquid, perfumed, and having an acid reaction.

2,499.—(*a*) How is **Red Clover** used externally in cancer? (*b*) What other plant or vegetable extracts are used in the plasters for removing cancer? (*c*) Give a few formulas for preparation of plasters for cancers. [Note.—The name and address of this inquirer are illegible.—Ed.]

2,500.—What causes the whitish precipitate in **Elix. Ferri Phosph. Quin. et Strych.** made according to formula in National Formulary, and how am I to correct it?

2,501.—Address of a Mr. Warren who recently contributed an article to the *Chemical News* on an improvement in the manufacture of **Potassium Cyanide**, an abstract of which was published in this journal for January 15th ult.

2,502.—What will take off **tattooing** from the skin?

2,503.—Formula for "**Wine Mitchella Comp.**"

2,504.—Where can **gold fish** be bought (to keep in bell on counter)?

2,505.—Contents of "**Lydia Pinkham's Vegetable Compound.**"

2,506.—Reliable test for "**Exalgine.**"

2,507.—(*a*) Formula for "**Wine Mitchella Compound.**" (*b*) Formula for "**Syrup White Pine Compound.**"

2,508.—[Answered by Editor.]

2,509.—Formula for **blackboard slating** without alcohol.

2,510.—Where and at what price can a "**Bulow's Tablet Machine**" be obtained? (*Vide* Amer. Drugg., August, 1890, p. 143.)

2,511.—Composition of **Jonas Whitcomb's Remedy** for asthma, rose cold, hay fever, prepared by Joseph Burnett & Co., of Boston.

2,512.—**Address of Mr. J. M. Richter**, maker of tablet machine described in American Druggist of November, 1890, also referred to in December issue. Letter addressed to him at Gratz returned. "Party not found."

2,513.—Where to obtain the **Machine for making Compressed Tablets**, mentioned in November issue (see also No. 2,512).

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A Paper Mouse Trap.

A paper mouse trap? Certainly; and an uncommonly good one it is, too. It was invented—or discovered; Josh Billings used to say that all our inventions are mere discoveries—by a bright little housekeeper in a neighboring city, after this fashion: Despite all screens, the ubiquitous fly persisted in visiting her kitchen, and to stop his buzzing she bought some sticky fly-paper and told madame the cook to display its attractive and retentive surface freely in various parts of the room. And it was so. But the next morning there was a sound of squeaking and of squealing, and lo! upon a sheet of the paper which had been laid flat on the tub lids was Master Mus Musculus, very much distressed in mind, and as to all four feet very much stuck fast. Thereafter, whenever mice became troublesome, a sheet of the paper was laid near their run, with a sure repetition of the above result. Up to date, eight have been thus taken, and the paper still holds good. No patent applied for.

BIBLIOGRAPHY.

Physical Diagnosis and Practical Urinalysis. An Epitome of the Physical Signs of the Heart, Lung, Liver, Kidney, and Spleen in Health and Disease. Edited by John E. Clark, M.D., Professor of General Chemistry and Physics in the Detroit College of Medicine. Detroit: Illustrated Medical Journal Co. Pp. 193, sm. 8vo. $1.

While this work is, as its title would indicate, a clinical aid in a general way in medical cases, its chemical section is rather the strongest feature and of chief value. It is to be hoped that the author will amplify future editions so as to embrace some of the recent researches in animal chemistry and a general outline of pharmaceutical chemistry—knowledge which medical students have scanty means for acquiring.

A Manual of Weights and Measures. Including Principles of Metrology; the Weights and Measures now in use; Weight and Volume, and their Reciprocal Relations; Weighing and Measuring; Balances (Scales) and Weights; Measures of Capacity; Specific Weight and Specific Volume, etc., with Rules and Tables. By Oscar Oldberg, Pharm.D., Professor of Pharmacy and Director of the Pharmaceutical Laboratory in the Illinois College of Pharmacy, and Department of Pharmacy of the Northwestern University. Third Edition, Revised. Chicago: W. T. Kerner, 96 Washington St. 1890. Pp. 250, sm. 8vo.

We have noticed former editions of this valuable handbook, and heartily recommend its possession by all whose work involves the consideration of quantities by weight or measure. Its tables are labor-saving contrivances, and are so numerous and elaborate as to leave little occasion for mathematical calculation.

Year-Book of Pharmacy. Comprising Abstracts of Papers relating to Pharmacy, Materia Medica, and Chemistry contributed to British and Foreign Journals from July 1st, 1889, to June 30th, 1890. With the Transactions of the British Pharmaceutical Conference at the Twenty-seventh Annual Meeting, held at Leeds, September, 1890. London: J. & A. Churchill, 11 New Burlington St. 1890. Pp. 551, 8vo. 10 shillings.

The receipt of this annual is always a source of gratification. Its contents are always comprehensive and bear the evidences of intelligent discrimination. It is a worthy companion for the Transactions of our own National Association, and they serve to supplement each other.

Prof. Koch's Method to Cure Tuberculosis Popularly Treated. By Dr. Max Birnbaum. Translated from the German by Dr. Fr. Brendecke. With an Appendix, being Prof. Koch's First Communication on the Subject, translated from the *Deutsche Medicinische Wochenschrift*, and Explanatory Notes by the Author. Milwaukee, Wis.: H. E. Haferkorn, 1891. Pp. 78 and 27, 8vo. Paper 75 c., cloth $1.

A popular treatise of this character is worthy of much praise, since the knowledge which it conveys will do much to correct misapprehension of the nature of Prof. Koch's methods and consequent disappointment and harm.

A Laboratory Manual of Chemistry, Medical and Pharmaceutical. Containing Experiments and Practical Lessons in Inorganic Synthetic Work; Formulæ for over Three Hundred Preparations, with Explanatory Notes; Examples in Quantitative Determinations and the Valuation of Drugs; and short Systematic Courses in Qualitative Analysis and in the Examination of Urine. By Oscar Oldberg, Pharm.D., Professor of Pharmacy and Director of the Pharmaceutical Laboratories in the Illinois College of Pharmacy, Northwestern University; and John H. Long, Sc.D., Professor of Chemistry and Director of the Chemical Laboratories of the Chicago Medical College and the Illinois College of Pharmacy, Northwestern University. With Original Illustrations. Second Edition, Revised and Enlarged. Chicago: W. T. Kerner, 96 Washington St. 1891. Pp. 455 and 3 plates, 8vo.

The title page gives the contents of the work, and the preface states that the greater part of this edition is an exact reprint of the first. The chapter on urine analysis has been, however, rewritten, and a new chapter has been added on the microscopic examination of urinary sediments. In the treatment of the subjects the method and language of the Pharmacopœia have been followed to a considerable extent.

Bacteriological Technology for Physicians. With Seventy-two Figures in the Text. By Dr. C. J. Salmonsen. Authorized Translation from the Second Revised Danish Edition, by William Trelease. New York: William Wood & Co. 1890. Pp. 162, 8vo.

A good manual for the guidance of such physicians as have occasion to acquire a practical knowledge of bacteriology has been needed for some time. The author is well known as an accomplished bacteriologist, and this effort has been made to aid those who have not the advantage of established laboratories, but are obliged to work at home and with such materials as are commonly available.

Proceedings of the Michigan State Pharmaceutical Association at its Eighth Annual Meeting, held at Saginaw, September 16th, 17th, and 18th, 1890. Also the Constitution and By-Laws, Roll of Members, etc. 1890. Pp. 95, 8vo.

The papers and discussions in this report upon matters of trade interest are especially interesting.

A Synopsis of Morbid Renal Secretion. Second Edition, Revised. By Albert Abrams, M.D., Adjunct to the Chair of Clinical Medicine, and Demonstrator of Pathology, Cooper Medical College, San Francisco. The Bancroft Company. 1890. $1.

This is in form of a chart on card-board, 22x28 inches in size, and gives in tabular arrangement the leading facts of urinary chemistry.

Post-Mortems: What to Look for and How to Make Them. With Sections on Infanticide, Poisons, Malformations, etc. By A. H. Newth, M.D., London. Edited, with Numerous Notes and Additions, by F. W. Owens, M.D., Demonstrator of Anatomy in the Detroit College of Medicine. Published by the Illustrated Medical Journal Co., Detroit, Mich. Pp. 136, 3¼x7 inches. $1.

This has been made with a view to the needs of many who, having occasional need for a guide in post-mortem examinations, have not the time to consult elaborate treatises on the subject. Nevertheless, it is very comprehensive, and is perhaps quite as thorough in elaboration as there is any need, unless it be in cases demanding expert skill.

Twenty-first Annual Report of the State Board of Health of Massachusetts. 1890. Pp. 457, 8vo.

This report is always interesting from the thorough way in which its subjects are handled. The report of Dr. B. F. Davenport of the results of his examination of six hundred samples of drugs requires but less than four pages, and shows by comparison a very commendable regard for legal standards on the part of dealers. Over 83 per cent were found to be of proper quality, and the variations were mostly among the things which are more often faulty than otherwise.

Essentials of Pharmacy. Arranged in the Form of Questions and Answers. Prepared especially for Pharmaceutical Students. By Lucius E. Sayre, Ph.G., Professor of Pharmacy and Materia Medica of the School of Pharmacy of the University of Kansas. Philadelphia: W. B. Saunders, 309 Walnut St. 1880. Pp. 179, sm. 8vo. $1.

There are many features of this work which are very excellent, and its use by pharmaceutical students cannot fail to render their knowledge of the subject more permanent.

NEWS NOTES.

The retail druggists of Philadelphia, to the number of over one hundred, held a meeting at No. 1128 Arch street, on Monday, the 2d of February, which is said to have been the largest meeting of the trade held there for many years.

The meeting was presided over by Mr. W. N. Stern, and finally resolved to adopt the coupon scheme, offered by Mr. Kline, representing the National Wholesale Druggists' Association, to prevent the sale of patent medicines at cut rates.

Under this plan the manufacturer will place on each of his preparations a coupon representing twenty per cent of its retail price. The coupons are to be detached at the sale of each package or bottle of the proprietary goods, and these will be redeemed by the manufacturer after the retailer has made an affidavit that the medicine was not sold below the regular price.

A substitute for Mr. Kline's motion, offered by William H. Lacey, proposed the establishment, by the manufacturers, of local agencies throughout the city, these to have the exclusive sale of the medicines controlled by the maker they shall represent.

Mr. Kline, being a wholesaler, quickly expressed his opposition to Mr. Lacey's plan. He said that he would be pleased to see such agencies established if the firm with which he was connected should be awarded the distribution of the drugs.

Mr. Lacey's motion was then offered to the meeting and defeated. The coupon plan was then voted on and carried.

During the hot discussion, which was softened by frequent laughter and applause, the fact that cut rates also exist in the preparation of prescriptions was brought out.

One of those present said patent medicines should be boycotted, as at present there was no profit in the handling of the goods; every dealer being compelled to cut rates to get rid of his stock. Mr. Bell said there was no remedy in boycotting, as the people read the advertisements and would use the patent medicines.

The question will now be brought before a meeting of committees representing the wholesale dealers, the jobbers, and the retailers, who will decide on a final plan to be offered the manufacturers. It is said that the latter are willing to follow whatever plan the trade may suggest to circumvent the "cutters," who, it is said, are more numerous here than in any other city.

A CHANGE IN THE LAW FAVORED.

After the "cut" rates had been disposed of, Prof. Remington denounced the eleventh section of the Pharmacy law of Pennsylvania, which requires a pharmaceutical graduate to pass an examination by the Board of Examiners before he can establish a drug store, and permits a physician to conduct the business on the mere fact of his possessing a doctor's diploma. The amendment offered the Legislature will enable the graduate of a pharmaceutical college to also practise on his diploma and without the examination now required. Those out of the business for a year previous to the passage of the amendment can also engage in the drug trade without going before the Board. Mr. Kline declared that the amendment would be the means of creating colleges for the manufacture of pharmacists, and would degrade the profession. The motion favoring the amendment was carried unanimously.

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The Boston Druggists' Association held its annual meeting and dinner at Parker's last month, and, as usual, entertained eminent gentlemen representing the national, the State, and the city governments.

Previous to the dinner the business meeting was held in the parlors, where the following board of officers was elected to serve for the ensuing year: President, Amos K. Tilden; treasurer, Thomas L. Jenks; secretary, James O. Jordan; executive committee, Frank A. Davidson, William F. Horton, Francis Hollis, Harvey S. Sears, Charles A. Kilham, William A. Chapin, George W. Cobb; committee on membership, Charles A. West, Reuben L. Richardson, George H. Ingraham, Alfred H. Bartlett, Josiah Bryant.

After two new members had been admitted it was voted the sense of the members that in the retirement of the late president, Mr. Gorham D. Gilman, the association lost a presiding officer who had done much to bring prosperity to the organization.

Over one hundred members sat down to the dinner table, ex-President Theodore Metcalf presiding, and having with him at the head of the table Collector Beard; the new president, Mr. Amos K. Tilden; Attorney-General Pillsbury, Aldermen Carruth and Rust, Mr. Stephen O'Meara, Dr. Thomas L. Jenks, Prof. G. F. H. Markoe, and Mr. Albion Clapp.

After the dinner addresses were made by Collector Beard, Attorney-General Pillsbury, Alderman Carruth, and Stephen O'Meara of *The Journal*.

MISSOURI MENTIONINGS.

ST. LOUIS.

It is probable that the St. Louis Apothecaries' Association will hold a meeting about the middle of the month. Thos. A. Layton is one of the moving spirits in this organization.

The Executive Board of the Alumni Association of the St. Louis College of Pharmacy met February 3d. A special committee on prizes, consisting of T. A. Buckland, Prof. Francis Hemm, and Dr. J. C. Falk, was appointed.

A class in field botany for pharmacists is just what is needed here in the spring, but no one seems to be ready to start it.

Will there be a druggists' ball this spring? Such is the question asked by the wives, daughters, and best girls of the druggists and drug clerks. Last year was an off-year, as no ball given.

The proposed rebate plans are stirring up the local jobbers and exciting some of the retailers, but no decided action has been taken by any of them.

The Omega Phi Society of the St. Louis College of Pharmacy is a flourishing organization of the senior class. They have selected Mr. M. L. Holloway, of Middleton, Pa., as valedictorian on behalf of the class.

A regular monthly meeting of the St. Louis Club of Microscopists was held February 5th. The next meeting occurs the first Thursday in March.

B. F. Pyle, of B. F. Pyle & Co., Lincoln, Neb., was in the city some days ago to meet numerous friends.

Charles Rogers, formerly of this city, is now practising his profession in the fine atmosphere and amid the beautiful scenery of Denver, Col.

Chas. E. Burkhardt, Ph.G., has gone to Pine Bluff, Ark., as clerk for D. I. Mills & Co.

The second edition of Prof. Wall's work, entitled "The Prescription," is out and meeting with a ready demand.

The matrimonial engagement of Ed. H. Wolf, of the Wolf-Wilson Drug Co., is announced in society circles.

Dr. L. Haigh has been off to Columbus, O., on a business trip.

Dr. H. M. Whelpley will deliver a lecture on the "Wonders of the Microscope" to the Working Girls' Self-Culture Club, 2004½ South Broadway, Friday evening, February 20th.

H. J. Meyer, of the Meyer Brothers' Drug Co., has recently moved into his elegant new residence. It is one of the finest homes in the city, and lighted throughout with electricity.

Amos Poole, the druggist, corner of Washington avenue and 13th street, is now a medical student. He has a host of druggist associates in the same occupation.

Dr. E. H. Griffith, inventor of the Griffith Club Microscope, was in the city a few days last month and called on old friends.

L. W. O. Rinkert has a new store on the corner of Garrison avenue and North Market street.

H. F. GRIESBACH, of 3301 Easton avenue, is looking for the clerk that stayed with him just long enough to clean the money drawer of all the change it contained.

THEO. KLIPSTEIN is now a busy man. He has charge of the store at 16th street and Franklin avenue, and is also interested in the firm of John Guerdan & Co. on West Olive street.

FRANK A. TEMM is one of the drug clerks who studied medicine and now has a good practice.

KANSAS CITY.

M. J. O'KEEFE is at Eleventh street and Broadway.

FRED. C. HATHAWAY is once more with Meyer Bros. Drug Co.

O. W. and FRANK LOWE are with George & Fred. Eysell.

JNO. HOOVER is with Dr. O. F. Jones, at Independence and Waldron avenues.

J. ANDREWS is at Twelfth and Charlotte streets; was formerly with D. V. Whitney, Twelfth street and Porter road.

W. W. GREGORY is now head clerk at Frank Price's, opposite Union Depot.

BENJ. C. HOWARD, Ph.G., Fort Worth, Texas, is visiting parents in the city.

PROF. E. LANPHEAR is delivering a course in Latin at the College of Pharmacy.

JNO. C. MAXSON is pharmacist for the Fair View Hospital and the University Medical College.

J. R. MCGEORGE, Ph.G. (class of '89–'90), is at Fifteenth and Jackson streets.

HENRY KAUFHOLZ, Ph.G., graduate of the K. C. College of Pharmacy, is now with Heller, Sixteenth street and Brooklyn.

GRASE FAGIN (class of '88) is proprietor of a store at Lathrop, Mo. He reports business good.

WE understand the Gem Drug Store, which was assigned to Meyer Bros. Drug Co., will be sold at auction.

The pleasant face of CHAS. W. NEAL, Ph.G. (class '90), now brightens the laboratory of Woodward, Faxon & Co.

W. D. BARTON, formerly a pioneer druggist of Ohio, is now justice of the peace at Independence and Troost avenues.

CHAS. MCDONALD, one of the best known druggists of this city, will graduate at the University Medical College this year.

The class of 1890 will never forget the pleasant stories of JAMES G. YONGE. He is proprietor of a store at Rich Hill, Mo.

S. E. JOHNSTON will practise pharmacy and dentistry together. He is attending both the Western Dental College and the College of Pharmacy, and comes from Seneca, Kan.

H. B. SPARKS, Ph.G., Illinois College of Pharmacy, is manager of the artistic drug store near the Union Medical College, Ninth and Harrison streets.

DR. O. F. JONES, druggist at Independence and Waldron avenues, has been called to Gainesburg, Pa., to be at the bedside of his dying mother.

MR. D. M. CLARCK, Twelfth and Harrison streets, will retire from the drug business in the near future, and MR. LEMON will have charge of the store.

JULIUS G. KEIFER, M.D., Ph.G., is one of those progressive men who have studied medicine after graduating in pharmacy. He is located at Sixth and Locust streets.

ROBT. C. CANNON, whose father is President of the Upper House of the City Council, is attending the College of Pharmacy. He is employed at Woodward, Faxon & Co.'s.

THE KANSAS CITY RETAIL DRUG CLERKS' ASSOCIATION has "gone by the way" some months past, but chances are it will be organized again, dressed in a new suit of clothes, ere Eastertide.

J. F. CHANDLER is with O'Reilly Bros. in the Warder Grand Drug Store. He is a senior at the College of Pharmacy, having attended his first course at the Illinois College of Pharmacy.

"UNCLE JAKE" LEABO, as well known as any druggist in Northwest Missouri, is an enthusiastic temperance advocate at Excelsior Springs. He recently aided in prayer service in one of the saloons in that city.

MR. F. BYRNE, of the firm of Walker & Byrne, has just returned from a two weeks' visit to Houston, Galveston, and other Southern cities. He has many pleasant anecdotes to tell of his trip. Mrs. Byrne is visiting relatives in Ohio.

Smuggling Opium.

THE manager and four clerks of a large Chinese firm which deals in teas and other products of China at No. 34 Pell street, in New York, were lately arrested charged with smuggling opium. For some time officials of the Government have been aware that the drug has been brought into this country without the payment of duty, and about two months ago Secretary Windom detailed Special Treasury Agent H. A. Moore, of Ogdensburg, N. Y., and Special Inspectors C. Lewis, of Niagara Bridge, and H. E. Taylor, of Montreal, to investigate the cases of smuggling. It was known that the opium was brought here from Victoria and New Westminster, British Columbia, where thirty firms are engaged in cooking the drug. The opium is imported there in its crude state, the duty being $1 a pound. The tariff on the article prepared for smoking is fixed at $12 a pound by the United States laws, and the price of the opium here is about $30 a pound.

Not long ago the Treasury officials came into possession of a scrap of paper which indicated that a man called A. D. Wilder and a number of aliases was connected with the smuggling. Wilder was known to have dealings with the firm in Pell street, and made frequent trips between Victoria and New Westminster, B. C., Montreal, Quebec, New York, and other points in this country. An examination of the register of the Hotel Blanchard in Montreal showed that Wilder's handwriting was the same as that on the scrap of paper. Wilder was traced to a place in Quebec, and was seen to buy a railroad ticket for St. Johns, Neb. The three officers took the same train that he did, and noticed that he carried two large, cheap valises. They took a seat behind him, and learned something about him. Lest they should arouse his suspicions, they left the train and went to Boston by another route.

When Wilder arrived in Boston he was arrested. In the valises were found two cans of opium, containing twenty-five pounds each. Wilder was held in $10,000 bail by a United States Commissioner. In his pocket were found papers showing that he had smuggled opium worth $30,000 in the last eighteen months, and also proving that he had brought some of the drug to the firm of Wing Wau Chung, at No. 34 Pell street. This house does a large business, having offices in Pekin, San Francisco, Victoria, B. C., and Boston, besides in New York.

The three Treasury officials and Deputy Sheriffs McGrath and Van Buskirk went to the place in Pell street, and arrested Lee You Pine, the manager, and Suo King, Lee Fou, Lee Quoin, and Lee Chung, clerks. A quantity of opium was found in the house, and in addition a number of cheap valises, with the partitions cut out, like those that Wilder had carried.

Official Red Tape.

SHE walked timidly up to the stamp window, where the clerk was standing in awful dignity, and laid a copper before him.

"Stamp, if you please."

"How many?"

"One, please."

"Two cent or a one cent?"

"A one cent, please."

The Government was satisfied, and the stamp was produced.—*Lowell Citizen.*

American Druggist
AN ILLUSTRATED TRADE JOURNAL

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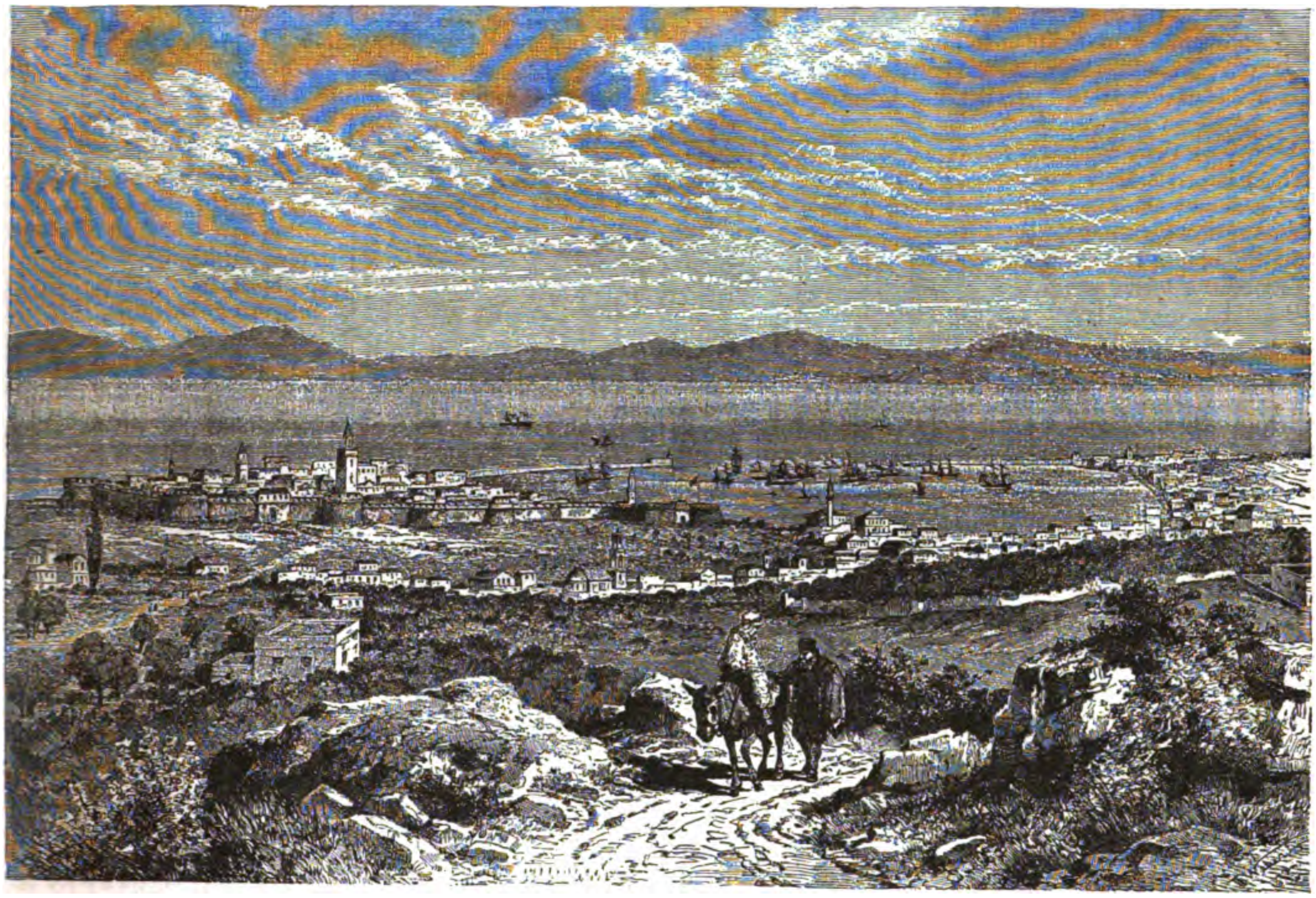
CHIO:

THE HOME OF MASTIC AND CHIAN TURPENTINE.



Port Castro.

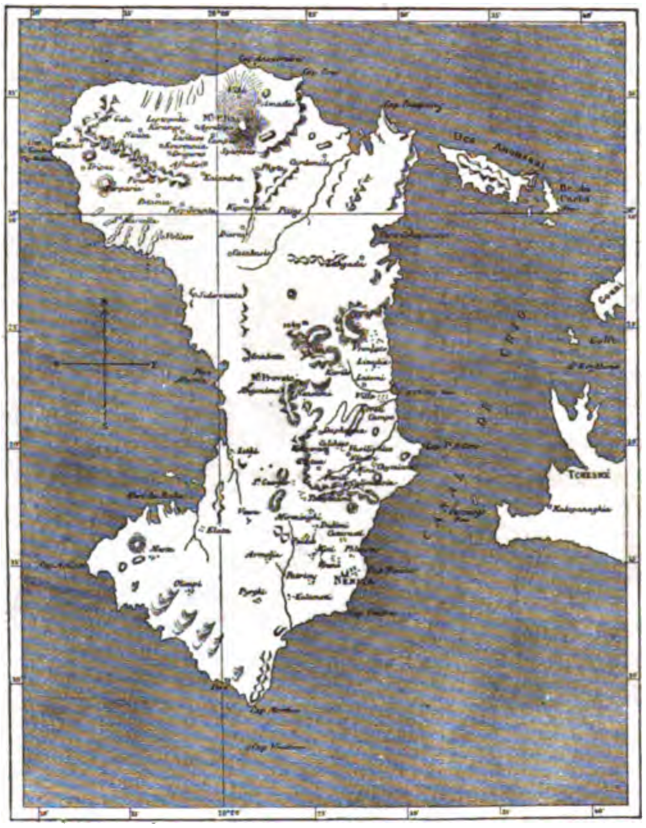
An Old Chiote Turk.

CHIO is an island situated in the Ægean Sea, to the eastward of the Gulf of Smyrna, from which it is separated by the peninsula of Karabourna. It measures from north to south about twenty-eight miles, and is said to somewhat resemble in its form the Greek letter χ (Khi), which seems to have given to it its name, for it should be called CHIO, not SCIO as the Venetians and Genoese have improperly named it. Scio is really a corruption of the two words *εις Χιον* (to Chio). It disputes with Smyrna the honor of having been the birthplace of Homer, and appears to have been colonized by Ionians, as was also the case with the adjoining coast of Asia. The earliest literature was in Ionian dialect until the fifth century of the present era, since when the Attic dialect became predominant. In A.D. 498 it was conquered by the Persians, and its galleys, as allies of Xerxes, took part in the conquest of Salamis. It was then one of the wealthiest of the Ionian cities and could man a hundred galleys. Later the Chiotes, in company with the Spartans, fought against the Athenians in the Peloponnesian War; then Chio came under the rule of the kings of Macedonia. Shortly before our era, while an ally of Rome, it was sacked by Mithridates, who reduced the inhabitants to slavery, from which they were still later delivered by Sulla.

Herodotus visited Chio with a numerous suite of followers, and the city was the recipient from him of many benefactions. From this time to the tenth century the island was comprised in the Byzantine empire and its history was without notable incidents. In 1124 a Venetian admiral, Domenique Micheli, drove out the Turkish prince, Tsaka, and annexed it to the Venetian republic.

Having again been acquired by the Turks, it was seized in 1346 by the Genoese, who held it for 220 years, and in the name of this republic it was governed by the family of Juistiani and was at peace. In 1563 the Turks again took possession, and in 1691 the Venetians became its possessors for a year only, when the Turks finally became its possessors and have so continued.

In 1788, 14,000 persons died of the plague, and in 1814 5,000, and eight years later the Turks invaded the island and massacred 40,000 of its inhabitants, reducing the remainder to bondage. Again in 1822 many thousands were slaughtered by an army of 60,000 fanatical Turks, 3,000 fugitives having been burned in one monastery; and it was only by the intervention of European and Greek vessels that some were enabled to escape.



Map of the Island of Chio.

The port of Chio (Port Castro) has the form of an ellipse, with the citadel at the northern end, the Turkish cemetery at the southern end, and the city on the western side. The eastern side is formed by a somewhat dilapidated mole or breakwater connecting the points on which are located the fortress and the cemetery, excepting at the centre where there is an opening to the harbor. Owing to the deposit of sand the anchorage for vessels drawing more than fourteen feet is limited to a small space near the entrance. All attempts on the part of natives or foreigners to improve the port have met with obstruction on the part of the Turkish rulers.

North of Castro is the port of Lungada, deep but not large, and contiguous to it is another large port, Coloquinta (ancient Delphinium), which was of primary importance in the days of the wars of Athens and Sparta, but is now abandoned. On the north side is but one port, Cardamilla, but it is shallow and little frequented. The west side has two ports, Alunta and Mesta, the latter being most commodious and in best condition, but not adapted for commercial use owing to the products of the country going to Port Castro.

Lastly, Cato Puchas is a small port on the south.

The nature of the soil is calcareous. Antimony exists in the form of non-argentiferous sulphate, and cupric pyrites in the north. Ferruginous earths are not rare. Near Nerrita (in the mastic region) fossiliferous carbon is found. The white and red marbles of Latomi had considerable renown in ancient times, but the quarries are almost unexplorable. A soft stone of reddish color is much used for building. Only the antimony gives occasion for any industrial work at present.

MASTIC.

The flora of the country is that of the Mediterranean coast. That which is especially characteristic of Chio are two trees which seem always to have existed there and which are peculiar to the island, the mastic tree and a species of pistache from which is derived the Chian turpentine.

The neighborhood of the mastic valleys is generally flat and stony, diversified with small hills. One meets with few streams. The land bordering on the coast is generally higher. Rain is ruinous to the crops and also prevents the growth of the shrubs. Frost is rare, but very injurious. It is a species of *Lentiscus* which produces the mastic. Why the mastic does not flourish out of the island in analogous climates and in the same latitude is a question that has not yet been studied. Each tree is subject to a tax—a bad system, which prevents the development of its cultivation. However poor the harvest may be one year, the peasant must borrow to pay the oftentimes enormous toll. If the following year he cannot meet the exorbitant demands of the tax gatherer, he tears up the shrubs, preferring the loss of his property to working without remuneration.

Mastic is a white resin in grains varying in size from the head of a pin to that of a penholder. It flows from a species of lentisk ordinarily about the height of a man. Mastic is also found in Arabia and Africa, but of an inferior quality. In July and August several incisions are made in the stem of the shrub. The peasants, men and women, go to the fields at midday and make on each stem a number of incisions; they then return several times to gather the mastic which has flowed. It is unfortunate for the harvest if during these two months there occurs a flood caused by summer showers. All is carried away by the waters, and the inhabitants suffer great loss. Fortunately, however, it seldom rains in August and September.

There are three qualities of mastic. That in cakes is composed of large pieces, and is most sought for by the amateur mastic chewers. Above all it has great sale in the seraglios. All Turkish women chew mastic, and the Turks call the island *Sekiz Mastic* (Island of Mastic).

The price of choice mastic is from 120 to 130 piastres or more per oka (of 1,300 Gm.); 93 piastres are equal to 20 francs ($5).

The mastic in large tears is worth from 90 to 100 piastres ordinarily. Mastic in small tears or pearls is worth from 70 to 85 piastres. This is used in the factories. The mastic mixed with fragments of leaves and sand is used in the manufacture of brandy called mastic spirit. The price of this product varies, according to the quality, from 20 to 50 piastres.

Good mastic is known by its whiteness, consistence, odor, and the flavor which it leaves when it is chewed.

Europe consumes a large quantity for varnish. Constantinople demands the best quality. It is not long since Turkey renounced the monopoly of mastic. The peasant was unable to dispose of his crops, which passed entirely into the hands of factors at a price much below its value. If they were detected in smuggling, it was at the penalty of their lives. To-day the sale is free.

Speaking of mastic brandy, it is made by distilling raisins, in which mastic is then dissolved in quantity according to the desired product. It is then redistilled, and to the product is added a little anise and sugar. In this way an agreeable liqueur is obtained, which is ordinarily taken in small glasses at mealtime. Like absinthe, it becomes cloudy and white by the addition of water, the resin being deposited. Mastic brandy is worth from 8 to 16 piastres and is a great article of commerce, being sent in demijohns from Marseilles to Constantinople and to all the Levant.

Mastic Gathering.

CITRUS FRUITS.

Among other products orange-flower water, lemon-flower water, and the essential oil of lemon give rise to some commerce. The lemons and oranges are sent particularly to Russia in small cases divided into two compartments, where the fruit is wrapped in thin paper. There are two crops of lemons and oranges annually. In Campo and Livadia are found the most beautiful gardens. They are also cultivated at Cardamilla. These trees are very susceptible to frost and require great care, much fertilizing (they use tan-bark), and constant watering. Each garden has its well, with an appliance worked by a mule or cow. The water is raised by means of a *noria*, made of long earthen jars—a species of bucket manufactured in Armolia—and attached by their handles to a double well-rope. The whole is arranged on a wheel with teeth articulating with the system. A few proprietors have imported steam machinery, but, the water being easily exhausted from the wells, no advantage has been gained by this innovation. The principal harvest takes place from November to March. In the month of August a few lemon trees produce fruit. That which is particularly important about the lemons of Chio is their preservation. They must be cut when neither too green nor with too long stems. In the first case they would not keep; in the second they would be broken. When cut, the lemons are assorted—all those with blemishes are put aside for local consumption. Those which fall from the trees are sold on the spot. Generally the fruit is packed in two large baskets on the back of a mule, and sent with greatest care to some store in the city, where they are packed. Each case, being made of thin board from Trieste, holds from 400 to 500 lemons. Steamers, and occasionally sailing vessels, carry them to their destination.

CHIAN TURPENTINE.

Chian turpentine comes from a species of pistache, of which the grains, as large as a pea, have the flavor. These seeds are generally consumed on the spot by the feminine inhabitants—for the chewing of mastic and crushing of these seeds is one of the special recreations of the Chian women. An excellent oil is derived from these seeds. As to the turpentine which flows from the tree, it is very white and has a very strong odor, but the quantity is very limited. Of late years, through the writings of Mr. Clay, an English surgeon, Chian turpentine has had some reputation as a remedy for cancer.

Pistacia Terebinthus Linn.

OTHER PRODUCTS.

Almonds are light and have a delicious flavor, especially in certain localities. They are exported in large numbers.

Beans are cultivated principally in the villages in the neighborhood of Campo, and are greatly esteemed in Constantinople.

Olive trees are somewhat numerous on all the outskirts of the island. Very few people possess them. The extraction of the oil is made by means of a mill formed by two rollers worked by machinery. The ame system is used in chocolate manufactories. The residue from this operation is exported to other countries, where it is submitted to a less primitive mode of pressure.

The vine is not cultivated with a great deal of success, except in the villages in the north of the island, from which is still derived the syrupy wine so renowned among the Greeks and Romans.

Anise and cotton are also cultivated in certain parts of the island.

Mulberry trees are not rare, but few people devote themselves to the raising of silkworms. However, a few cocoons are shipped each year to Marseilles.

A local and lucrative industry is the manufacture of preserves, and the "sweets" of Chio are commonly offered to friends in Constantinople, Smyrna, and Greece. They are made with mastic, orange flowers, small lemons, and also with a fruit called *kitro*, or *frapa*, in the form of a large lemon without juice. They are also made with quince, pine seeds, wild cherries, etc. All fruits known in Europe are found on this island, but, as agriculture is not very far advanced, their quality leaves much to be desired.—From the narrative of DR. AD. TESTEVUIDE.

Oil and Vinegar Mixture for Domestic Use.

HUGO NÖRDLINGER, of Stuttgart, has hit upon a permanent combination of oil and acetic acid which is of great practical use for technical or medicinal as well as for domestic, culinary purposes. It may be employed for preserving, for making salads or mayonnaise. It is prepared in the following manner:

Take olive, poppy, or sesame oil (of best quality in each case), and add to it, under constant and active stirring, some acetic acid or the best wine vinegar. The proportion between oil and vinegar is not mentioned, but, as will be seen directly, it can readily be determined at the first trial. The turbid mixture produced is now mixed with finely powdered table salt and again thoroughly stirred, after which it is set aside to separate into two layers. The upper one will be perfectly clear and consist of oil combined with anhydrous vinegar or acetic acid, while the lower, turbid layer will contain water, salt, etc. The oily layer is decanted and bottled. The amount of salt added is proportionate to the amount of water present in the mixture. If acetic acid is used, only a small amount of salt is wanted; if vinegar is used, more must be taken.—After *Pharm. Zeit.*

Pistacia Lentiscus Linn.

[ORIGINAL COMMUNICATION.]

FLUID EXTRACT OF IPECAC.

BY

PROF. J. U. LLOYD,

Of Cincinnati, O.

HISTORICAL NOTES.

In 1859[*] I. J. Graham contributed a paper to the "Journal and Transactions of the Maryland College of Pharmacy" on "Syrup of Ipecac," in which he commended the use of a fluid extract made by percolation, the menstruum being 1 part of water and 7 of alcohol. From this fluid extract he made syrup of ipecac by a tedious process, embracing spontaneous evaporation of the alcohol after mixing the extract with a large amount of sugar, this step being followed by solution of the medicated sugar in water and then filtration.

In the same year[†] Prof. Wm. Procter classed ipecac with cimicifuga, black hellebore, jalap, podophyllum, blood root, and veratrum viride, and recommended the employment of a single menstruum for each of them, and a general process, the menstruum being officinal alcohol. He remarked, in connection with ipecac, that even the dusted powder may be employed with advantage. This preparation, however, made an unsightly preparation from subsequent separation of resinous bodies.

In 1862[‡] Prof. Procter recognized the feasibility of previously freeing the fluid extract from its wax and resin, "so that when added to simple syrup it shall produce a transparent medicated syrup."

This he accomplished by exhausting 16 troy ounces of the powdered ipecac with officinal alcohol (spec. grav. 0.835), distilling the alcohol, adding the syrupy residue to a pint of water, boiling to expel all the alcohol, cooling, and filtering. The filtrate being made to measure 8 fluidounces by evaporation or addition of water, as the case demanded, was then mixed with 8 fluidounces of alcohol.

In 1863 the fourth decennial revision of the United States Pharmacopœia appeared, and fluid extract of ipecac was recognized for the first time authoritatively. The process was practically that which had been offered by Prof. Procter, the chief distinction being that half a fluidounce of acetic acid was added to the syrupy residue obtained from the evaporated percolate before it was added to the water. That the addition of the acid was acquiesced in by Prof. Procter is shown, however, by a subsequent paper from him commending the officinal preparation as follows: "This preparation is one of the best innovations of the Pharmacopœia of 1860."[§]

In 1870[‖] Mr. Samuel Campbell contributed a paper on the subject of fluid extracts, in which he recommended that fluid extract of ipecac be made by means of a menstruum composed of alcohol 8 parts, water and glycerin each 4 parts, all by measure; and when the fifth decennial revision of the United States Pharmacopœia appeared (1872), the admirable process of Prof. Procter, accepted and introduced in the preceding revision, was unfortunately found to have been displaced by a formula based on the glycerin method of Mr. Campbell, in which diluted alcohol and glycerin were employed. After the appearance of the 1872 revision of the United States Pharmacopœia, Mr. B. F. McIntyre[**] made a comparative line of investigations on the subject of fluid extract of ipecac, using various menstruums. He concluded that the formula of 1860 was best of all, and criticised adversely that of 1870. Next, Dr. R. V. Mattison read a paper before the Philadelphia College of Pharmacy,[††] detailing his observations with the several preparations, and, in common with others, deprecated the 1870 formula in unmistakable language, saying of the syrup made from it: "The result is a turbid syrup, the abhorrence alike of patients, physicians, and pharmacists." He suggested a substitute, patterned after Prof. Procter's method, but he introduced glycerin as a part of the finished product.

Mr. H. C. Watt, who next reviewed the subject,[‡‡] was satisfied with the *result* of this formula, stating that the product was all that could be desired, but that he considered the working process defective. He tabulated the result of his investigations with four formulas, preferring the simple process of Prof. Procter (1862), but, as was the fashion at that date, added glycerin to the finished product. He could not see any advantage in using acetic acid.

The result of the united criticisms of pharmacists and physicians, in which the committee of revision of 1880 acquiesced, led to the rejection of that objectionable process and to its replacement in the last Pharmacopœia by a process which was practically that of the Pharmacopœia of 1863, the important difference being the exclusion of the acetic acid of the 1863 revision. So it is seen that the present officinal fluid extract of ipecac is made by the process suggested by Prof. Procter in 1862, and it is, in my opinion, universally commended by pharmacists. Probably the foregoing record embraces testimony to account for the more prominent steps that have occurred in the evolution of this important pharmaceutical preparation.

Until about 1875 the valuation of fluid extract of ipecac, it will be seen, had been established from a consideration of its physical character and property of forming an elegant syrup.

It is thought by some, however, that conditions now confront our profession or trade that demand a deeper consideration, in connection with such fluid extracts as this, than has heretofore been supposed feasible. It is believed by many able men that a standard of pharmacy that establishes the value of a preparation like fluid extract of ipecac by such tests as proportions of crude solid extractive matter, the property of forming transparent liquids with syrup, and other sensible characters, is, I may say, a kind of surface pharmacy. It is believed by many talented men that since the day of Prof. Procter the evolution in galenical pharmacy has been such as to admit of an insight that will enable us to add a more pronounced and uniform value to such preparations, and they argue in favor of a certainty in proportioning proximate constituents that in former times was probably impracticable. It is, I believe, proper that we should at this period carefully and without prejudice weigh the new testimony that may be offered. If it is shown that it is practical for us now to advance a step, we must take measures to do so.

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[*] Am. Journ. Pharm., 1859, p. 143.

[†] Proc. Am. Pharm. Assoc., 1859, p. 268.

[‡] Am. Journ. Pharm., 1862, p. 28.

[§] Am. Journ. Pharm., 1864, p. 401.

[‖] Am. Journ. Pharm., 1870, p. 17.

[**] Am. Journ. Pharm., 1873, p. 210.

[††] Am. Journ. Pharm., 1878, p. 481.

[‡‡] Am. Journ. Pharm., 1876, p. 337.

The Properties of Aluminium.

OUR knowledge of the properties of aluminium has of late been much enlarged by numerous investigators. We give in the following some of the results of investigations by A. E. Hunt, J. W. Langley, and C. M. Hall in the *Eng. and Min. Jour.* (49, 284).

Purity of the Metal.—The earlier information on the physical properties of aluminium is not very reliable, owing to the impurity of the metal, which rarely contained more than 95 per cent of aluminium.

More recently metal of 99 per cent has been manufactured by Deville's process, and by the electrolysis of alumina dissolved in a fluoride bath. In the first process the impurities are half silicon and half iron. In the latter they are mainly silicon. The latter impurity occurs chiefly in the graphitoidal form.

Specific Gravity.—A table of the specific gravities of the metal from various sources and variously treated is given. The following values may be useful: Taking the specific gravity of aluminium as 1, that of soft steel is 2.95; of copper, 3.6; of ordinary high brass, 3.45; of nickel, 3.5; of silver, 4; of lead, 4.8; of gold, 7.7. A sheet of aluminium 12 inches square and 1 inch thick weighs 14.03 pounds. A bar of aluminium 1 inch in diameter and 12 inches long will weigh 0.918 pound. A cubic inch of cast aluminium weighs 0.092 pound. A cubic foot of cast aluminium weighs 158.967 pounds.

Aluminium has the tensile strength of cast iron, with only about one-third the weight. It may, therefore, replace the latter with advantage in the moving parts of machinery.

Action of Heat.—Pure aluminium melts at about 1,200° F. One per cent of iron raises the melting point over 100°. Aluminium passes through a pasty stage, commencing at 1,000° F., and can be readily welded by pressure. It is very red-short at this temperature, and will not bear hammering. The metal is not injured by heating for a moderate period. The melting point of aluminium is given at 700° C. by Roscoe and Schorlemmer; by Deville it is stated to be higher than that of zinc, but lower than that of silver. Aluminium in a compact mass is chemically unaltered when heated under ordinary conditions by combustion of carbon at any furnace temperature, although it will burn readily in oxygen when in the attenuated form of thin foil. The presence of a flux is absolutely injurious, as it assists the absorption of silicon and iron from the walls of the crucible. When fused the metal becomes coated with a thin film of oxide, which protects it from further action. It is best melted in plumbago crucibles, from which it absorbs 0.25 per cent of silicon at each melting. Where it is desired to retain the purity of the metal it may be melted in crucibles brasqued with pure magnesia mixed with sufficient tar to give it plasticity.

Aluminium is most malleable between 200° and 300° F., but can be rolled or drawn cold with frequent annealing. It becomes red-short at 400° F. The annealing of aluminium is best carried out by heating it to a temperature of 800° F. At this temperature a bar of iron appears of a dull red in weak daylight.

A piece of pine wood drawn across the metal should leave a streak of carbon, which should burn away very slowly. Small articles may be annealed by plunging them in boiling linseed oil or water, and allowing them to cool with the liquid.

Aluminium, when slowly cooled from fusion, crystallizes in octahedra.

When pulled in a testing machine, a granular fracture is obtained. If aluminium is cooled rapidly the silicon does not combine with the metal and its hardness is not increased.

The specific gravity of aluminium is 0.2143 (Richards). The coefficient of linear expansion of metal of 98.52 per cent (Pittsburg Reduction Company) is 0.0000206 per 1° C. between 0° and 100°, a value approaching that for tin and higher than that for copper. Sound castings of aluminium can be obtained in dry sand moulds, preferably lined with plumbago. The metal should be heated to a temperature very little above its melting point, and should be poured quickly. The shrinkage of the above metal is $\frac{17}{64}$ inch to the foot (2.26 per cent of the length of the mould).

Aluminium, when exposed to the air, becomes coated with a very thin layer of oxide, which does not interfere with the surface polish, but prevents the oxidation from going further. It is equally stable in the presence of steam and hot air. It is unacted upon by sulphuric acid and nitric acid, if these acids be free from hydrochloric acid. It is not attacked by sea water nor by weak solutions of salt in acetic acid. Aluminium is a very soft metal, but is hardened by cold working. Castings can be hardened by being drop-forged in dies, if not required to bear a great weight. As above mentioned, aluminium is not hardened by chilling. Aluminium is very ductile and malleable. In fact, the latter property is a very good test of its purity. It is absolutely non-paramagnetic if it contain less than 0.05 per cent of iron. With 0.15 per cent of iron a slight polarity was observed; with 2 per cent the polarity was distinct.

Action of Impurities.—Silicon hardens aluminium considerably, increasing its tensile strength without materially decreasing its ductility; it, however, very materially reduces its malleability, and takes away its capacity of taking a high polish, and even prevents its retaining whatever polish it has received. Silicon in aluminium oxidizes by the action of the atmosphere or of moisture, and, if present in proportions above 3 per cent, very soon coats the metal with a dull gray and unsightly varnish. For certain purposes where it is desired to retain the lightness of the metal, and where the polish is of no consequence, an alloy containing 6 to 8 per cent of silicon is advantageous. As before remarked, the silicon is in the graphitoidal state. Were it possible to convert it into the amorphous form, a metal having the advantageous hardness without the tarnishing qualities might be obtained. Iron in small quantities hardens aluminium, but at the same time increases its specific gravity and renders it magnetic. It also reduces the malleability and injures the polish of the metal. If equal parts of aluminium and iron are melted together, an apparently true alloy is obtained, which, however, on solidifying soon crumbles to powder. Aluminium may be advantageously alloyed with copper. The latter adds hardness and decreases the shrinkage of castings. Carbon combines with aluminium only at very high temperatures and in proportions not greater than 3 per cent. It renders the metal brittle and porous. Sulphur combines with aluminium only at a very high temperature, and is not usually found in aluminium of commerce. Lead occurs in proportions up to ¼ per cent. It has no appreciable influence on the properties of the metal. Antimony does not unite with aluminium. Chromium alloys readily with aluminium, increasing the hardness and tensile strength of the metal, but decreasing its malleability. Tungsten hardens aluminium, but gives no useful alloys. Platinum unites readily with aluminium, but the alloys are brittle and unsound. The most useful metal for improving aluminium seems to be silver. Five per cent of silver increases the elasticity and hardness of aluminium without injuring the malleability of the metal. The alloy will also take a very fine polish. The addition of tin to aluminium renders the latter brittle, but it appears that 2 per cent of aluminium added to tin renders the metal harder and more elastic. Cadmium unites with aluminium, giving fusible and malleable alloys; the aluminium is, however, weakened. Bismuth forms brittle, very fusible alloys. Nickel, in quantity, produces brittle alloys; in amounts less than 3 per cent it increases the hardness without injuring the malleability and ductility of the metal. An alloy of 70 per cent copper, 23 per cent nickel, and 7 per cent aluminium has a fine yellow color and takes a high polish. Alloys of zinc and aluminium are very brittle and crystalline. The best solder for aluminium is this alloy of zinc and aluminium, Venetian turpentine being used as a flux. It does not flow very well, and the soldered surfaces will not withstand hard usage.

Alloys of Aluminium and Copper.—Ten per cent aluminium with 90 per cent copper (called 10-per-cent aluminium bronze), when rolled into plates, has an elastic limit of 70,000 to 80,000 pounds per square inch, a tensile strength of from 100,000 to 120,000 pounds per square inch, a reduction of area of from 20 to 40 per cent, with an elongation of from 5 to 10 per cent in 8 inches. The metal has a beautiful yellow color, and is capable of taking a high polish. It is unacted upon by dry or moist air. Its specific gravity in castings is 7.84, in rolled sheets about 7.89. Its modulus of elasticity is about 18,000,000 pounds. In castings it has a tensile strength of between 70,000 and 80,000 pounds per square inch, with a reduction of area of about 20 per cent. Ten-per-cent aluminium bronze melts at about 1,700° F., its melting point being a little higher than that of brass. It solidifies very rapidly and must be poured quickly. Care should be taken to prevent oxidation.

Aluminium bronze is a very close-grained, dense metal. It can be worked at a bright red heat and does not change at this temperature; hence it is well adapted for blast-furnace tuyères. It can also be remelted several times without loss, this property enabling scrap metal to be easily worked up. It can be brazed with a solder consisting of zinc and copper in equal proportions. One part of solder is used with 3 parts of a mixture of equal parts of borax and cryolite.

Extract of Malt.

MALT extract is of great value on account of its peculiar nutritive properties and its diastasic power. Increased importance is attached to the latter property, some one even asserting that without diastasic power the extract is worthless—a statement which is certainly beyond the evidence. Yet there is no doubt that the diastasic property is an important one, and ought to be possessed in fair degree by a good malt extract. Hence it becomes of importance to have an accurate means of estimating that property, and it seems desirable to fix a standard for the same. It is scarcely correct to speak of "the estimation of diastase," as pure diastase has never been prepared, and the gravimetric relation of sugar produced, to pure diastase, is unknown.

What we estimate is the effect, that is, the amount of starch converted into maltose and dextrin, although, of course, the effect is due to a compound or mixture of compounds called diastase. There are two general methods of determining the diastasic value of an extract: 1st. By allowing a given quantity of extract to react with a given quantity of starch paste at a certain temperature, noting the time required for the conversion of the starch, as indicated by its ceasing to give a blue color with iodine. 2d. By the action of a given amount of extract on excess of starch at a certain temperature in a given time, the amount of sugar produced being then determined. The latter is undoubtedly the more accurate and reliable method, and is that adopted by the best authorities. O'Sullivan uses potato starch, and determines the amount of alteration with the polariscope; but from a pharmacist's point of view the process as described by Duggan ("Year Book," 1886, 259) is preferable: 5 C.c. of a 5-per-cent solution of the extract are mixed with 250 C.c. of a 3-per-cent solution of arrowroot at a temperature of 55° C. After digesting for half an hour at that temperature. 5 C.c. of a 10-per-cent solution of soda are added, and the whole diluted to 500 C.c. This is then added to a measured quantity of boiling Fehling's solution until complete reduction, whence it is easy to calculate the amount of maltose (two-thirds the reducing power of glucose) which is present in the solution. The reducing power of the malt-extract solution itself is next determined, and the necessary deduction made from the number first obtained, the net result showing the amount of maltose formed from the starch by diastasic action.

I think it is preferable to use 400 C.c. of a 2-per-cent solution of arrowroot, as a 3-per-cent solution is inconveniently thick, and to stop the reaction by adding at least double the above amount of soda.

As regards the time during which the action should be allowed to continue, half an hour seems most suitable. There is a slight but inevitable error, arising from the fact that the reaction does not commence or stop instantaneously, so that it is not desirable to make the period of digestion too short, as that course would simply multiply the error. On the other hand, there is no advantage in continuing the digestion beyond half an hour. The importance of employing a definite kind of starch is recognized, and has been emphasized in an excellent paper by R. A. Cripps, published in the *Pharm. Journ.* of December 21st, 1889. There may be difference of opinion as to what the diastasic value of malt extract ought to be, but there will be general agreement that the standard should be fairly high. The tendency of most writers on the subject has been to accept too low a limit. Setting aside the diastasically worthless samples, and leaving out of account exceptionally high results, a good extract of malt may be expected, under the above conditions, to produce not less than three times its own weight of sugar from starch, calculated on the basis that 10 C.c. of Fehling's solution are equal to .0807 Gm. of maltose.

According to the accepted equation (which I know is near the truth) that 7 parts of maltose represent 10 parts of starch, such an extract would convert four and one quarter times its weight of starch into maltose and dextrin in half an hour.—D. B. DOTT, in *Pharm. Journ.*, November 18th.

Coral Growth on Submarine Cables.

SUBMARINE cables have before now rendered unexpected services to science, and the following is one of the latest: Very little, it seems, is as yet known as to the rate of growth of corals, but some very interesting details have been published by Mr. Alexander Agassiz in the August number of the *Bulletin of the Museum of Comparative Zoölogy at Harvard College*, with regard to a series of specimens which were taken in June, 1888, off the Havana and Key West cable, from a portion repaired in the summer of 1881, so that the growths could not be more than about seven years. It must be noted that this portion of the cable was laid at a depth of only from six to seven fathoms, and that the district in which it was laid was most favorably situated as regards food supply to the corals. Some of the specimens belong to species whose rates of growth have not yet been recorded. Verrill mentions that the thickness of the *Orbicella annularis* coral formed in sixty-four years was not more than about 8 inches; the specimens from the Havana cable grew to a thickness of 2½ inches in about seven years. *Manicina areolata* has grown to a thickness of 1 inch; while *Isophylla dipsacea* shows a still more rapid growth, projecting 2½ inches above the cable. Of course it is quite possible that these corals are of less than seven years' growth, but it is not probable that more than a short time passed before some of the swarms of pelagic coral embryos which must have floated past the cable found a place of attachment thereon.

Purification of Iodine.

FRANZ MUSSET recommends the following method for purifying iodine, that is, rendering it free from chlorine:

Place any desired quantity of iodine into a beaker, and cover it with a concentrated solution of iodide of potassium. Put a plate of glass over the mouth of the beaker, heat it until the iodine is melted, and then allow to cool. Since the melting point of iodine is lower than the boiling point of the solution of iodide of potassium. the operation is a very simple one. The iodine can easily be removed from the beaker and placed upon a filter, where it is allowed to drain and then washed with water, after which it is free from chlorine.—After *Pharm. Centralh.*

Preparation of Diastase.

HAVING to make occasional estimations of starch by O'Sullivan's method, the following is the best way I have found of preparing diastase of the highest activity: Two pounds of the best malt are allowed to stand soaked in 10-per-cent alcohol for eight hours, after which time it is pressed and filtered. The perfectly bright filtrate is then precipitated by absolute alcohol till a milkiness ensues. It is then allowed to stand some time, decanted or filtered, and the precipitate washed once or twice with absolute alcohol. The precipitate is then treated with cold water, filtered from the insoluble matter, and reprecipitated by alcohol. By repeating this treatment once or twice, and drying over phosphoric acid in vacuo, a white, easily soluble powder of high activity is produced.—J. ARTH. WILSON in *Chem. News*, November 7th.

The Assay of Nux Vomica and the Separation of Strychnine and Brucine.

The latest contribution to our knowledge on the assay of nux vomica is furnished by Prof. Beckurts in an elaborate paper in the *Archiv der Pharmacie*, 1890, 330–347. The paper contains the results of a research conducted by B. Holst and Prof. Beckurts jointly.

The first portion of the paper gives an account of the experiments made with various solvents of the alkaloids, for the purpose of selecting the most advantageous one. As a result it was found that chloroform is preferable to all others. The authors do not regard Dieterich's objections to this solvent as being well founded. Their mode of procedure in assaying the seeds and preparations made from them is as follows:

I. NUX VOMICA.

Exhaust 10 Gm. of powdered nux vomica in an extractor with a mixture of 75 parts of chloroform and 25 parts of ammoniacal alcohol. Distil the chloroform off the residue, evaporate the alcohol from the latter, dissolve it with a mixture of 5 C.c. of water, 5 C.c. of 10-per-cent ammonia, and 5 C.c. of alcohol, and shake the solution, in a small separator, with three successive portions of 20, 10, and 10 C.c. of chloroform. Distil the solvent off the united chloroformic solutions, warm the residue in a flask, on a water bath, until the ammonia is dissipated, dissolve it by adding 15 C.c. of one-tenth normal hydrochloric acid (containing 3.64 Gm. of the absolute acid in 1 liter), digest during five minutes, then filter, wash the filter with hot water until the washings are no longer acid, and then add from a burette $\frac{1}{100}$ normal ($\frac{N}{100}$) solution of soda until the excess of acid is neutralized, using cochineal as indicator. By deducting the number of cubic centimeters of the $\frac{N}{100}$ soda solution required for this purpose from 150 [only 15 C.c. of $\frac{N}{10}$ acid were used; these correspond, of course, to 150 C.c. of an $\frac{N}{100}$ acid], we will ascertain the number of cubic centimeters of $\frac{1}{100}$ normal hydrochloric acid which were required to combine with the alkaloids extracted from the 10 Gm. of seeds. Every 1 C.c. of the $\frac{N}{100}$ acid corresponds to 0.00364 of combined alkaloids, assuming that strychnine and brucine are present in equal quantity.

In ten experiments which the authors quote, the number of cubic centimeters of *one-tenth* normal hydrochloric acid required to combine with the alkaloids from 10 Gm. of the seeds ranged from 5.98 to 6.5 C.c., corresponding to 0.2176 to 0.2384 Gm. of total alkaloids.

The authors append the results of a series of experiments made to determine how the various commercial varieties of nux vomica varied in alkaloids. The fluctuation, in 10 Gm. of each sample, ranged from 0.15288 to 0.3417 Gm. [In the original the last two figures in the table, on page 339, are misprinted; the decimal point should be one place further to the left.—Ed. Am. Drugg.]

The authors found also that, in using their process, it made no difference whether the powdered seeds were first deprived of oil or not.

II. EXTRACT AND TINCTURE OF NUX VOMICA.

Two Gm. of the finely powdered extract are put into a separating funnel, a mixture of 10 C.c. of alcohol, 5 C.c. of water of ammonia (10 per cent), and 5 C.c. of water is added, and the whole agitated until complete solution has been effected. Next 20 C.c. of chloroform are added, the mixture shaken several times, and the clear chloroform layer drawn off after half an hour. The extraction is repeated with two further portions of chloroform, each of 10 C.c. The chloroform solutions are united, the chloroform distilled off, and the residue warmed in a small flask on a water bath until the ammonia is dissipated, and, having been treated with 15 C.c. of one-tenth normal hydrochloric acid, warmed a few minutes longer. The solution is filtered, and the yellowish-brown resinous residue washed with hot water until the washings no longer have an acid reaction.

The excess of acid is then determined by titrating with $\frac{1}{100}$ normal solution of alkali, cochineal being used as indicator. The number of cubic centimeters of alkali solution required for this purpose, deducted from 150, indicates the number of cubic centimeters of $\frac{1}{100}$ normal acid required to combine with the alkaloids in the 2 Gm. of extract. By multiplying this figure with 0.00364 we obtain the amount of alkaloids in the 2 Gm., and by multiplying the product with 50 we obtain the amount in 100 parts, or the percentage, provided brucine and strychnine are considered to be present in equal quantities.

An extract prepared according to the German Pharmacopœia yielded, on repeated assay, the following percentages of total alkaloids: 18.2, 18.02, 17.95, 18.02, 17.97, 18.07.

III. SEPARATION OF STRYCHNINE AND BRUCINE.

The authors next tried the hitherto published methods for separating brucine and strychnine. Among these was Dunstan and Short's process, which is based upon the insolubility of ferrocyanide of strychnine and the solubility of the corresponding brucine salt. Schweissinger had been unable to obtain correct results by this method. Holst and Beckurts ascertained that this was due to the fact that brucine ferrocyanide likewise separates from solutions when they are acid; moreover, the ferrocyanide of strychnine is a body liable to undergo changes. They also ascertained (which fact had already been announced by them in 1887) that, in a mixture containing the alkaloids in a pure state, they can be separately determined by a volumetric solution of ferrocyanide. If a solution of the two alkaloids, not too dilute (containing about 0.5 to 1 per cent), and strongly acidified with hydrochloric acid, is gradually treated with a solution of ferrocyanide of potassium until a *filtered* portion of the liquid, placed upon paper impregnated with dilute ferric chloride, produces a blue spot, the whole of the strychnine is then separated as acid ferrocyanide, while all the brucine still remains in solution. Since the delicacy of the reaction between ferric chloride and ferrocyanide of potassium is limited, an excess of ferrocyanide will be recognizable (by the blue spot on the iron paper) only if the dilution which it undergoes in the liquid to be titrated does not lie outside of the limits of recognition. It is best to standardize the ferrocyanide solution with a solution of strychnine containing free hydrochloric acid. After the last portions of ferrocyanide have been added, when making an assay, a short time must be allowed to pass before a portion is filtered and brought upon the iron paper. Further, when the end-reaction has made its appearance, it should be repeated and verified after a few minutes.

After it had been shown that the determination of strychnine and brucine separately could thus be accomplished in a solution of the pure salts, attempts were made to apply this method to the mixture of alkaloids obtained by the chloroform extraction above described, after the solution of the alkaloids had been acidified with hydrochloric acid. It was, however, found that in this impure mixture the ferrocyanide of strychnine is formed and separated so slowly that the end of the reaction could not be recognized. The authors finally hit upon a plan of purifying the alkaloids, though they have so far been unable to determine the nature of the impurity. The process of purification is as follows:

The liquid finally remaining after the determination—if free hydrochloric acid is present it must be neutralized with ammonia—is evaporated to dryness, the residue taken up by warm alcohol, the alcoholic solution filtered and again evaporated to dryness, the residue taken up with water acidulated with hydrochloric acid, the new solution mixed with one-third of its volume of alcohol, then supersaturated with ammonia, and shaken with three successive portions of chloroform, of 20, 10, and 10 C.c. respectively. The residue left after evaporating the chloroform is dissolved by a known quantity of one-tenth normal hydrochloric acid, and the excess of acid titrated by $\frac{1}{100}$ normal alkali. This furnishes the number of cubic centimeters of the one-tenth normal acid required to combine with the mixed alkaloids. [The weight of the mixed alkaloids *first* obtained, previous to purification, is taken as the true quantity. Presumably the amount of impurity is very small. After purification the weight must be taken again, as there will be a loss. The next problem is to find the percentage of strychnine and brucine in this purified mixture. By a simple calculation the percentage may be ascertained for the original mixture.—Ed. Am. Drugg.] In the last acidified solution, which contains the alkaloids in a tolerably pure state, the quantity of strychnine is now determined volumetrically as before directed. By calculating the quantity of normal acid corresponding to the amount of strychnine found, and deducting it from the total amount of acid corresponding to the mixed alkaloids, the amount of acid corresponding to brucine will be ascertained. By multiplying this amount (cubic centimeters of $\frac{1}{100}$ normal solution) with 0.0034, the corresponding quantity of brucine is ascertained.

The authors add: In performing these operations it is to be observed that, after the quantity of $\frac{1}{100}$ normal acid required for the total alkaloid has once been ascertained by the aid of a few simple steps, it is afterwards not necessary to operate strictly quantitatively, since it is only necessary subsequently to preserve the proportion between brucine and strychnine unaltered.

ANALYTICAL DATA.

1. A mixture of alkaloids purified as above directed required for exact saturation 29.7 C.c. of $\frac{1}{100}$ normal hydrochloric acid. After evaporation to 25 C.c., and addition of hydrochloric acid to make the solution strongly acid, there were required 4.66 C.c. of ferrocyanide solution until the blue iron reaction made its appearance (9.2 C.c. of the ferrocyanide solution corresponded to 0.1 Gm. of strychnine); hence there was present 0.051 Gm. of strychnine.

This amount of strychnine corresponds to 15.3 C.c. of $\frac{1}{100}$ normal hydrochloric acid. Consequently the balance, 14.4 C.c., corresponds to 0.056736 Gm. brucine.

The alkaloid mixture, therefore, consisted of:

Strychnine	0.051, or 48%
Brucine	0.0567, or 52%

2. Another purified mixture (prepared from the *same* extract as in No. 1 and in No. 3) consumed 57.8 C.c. of $\frac{1}{100}$ HCl; 9.3 C.c. of ferrocyanide solution were required to determine the strychnine (= 0.101 Gm.). These correspond to 30 2 C.c. of $\frac{1}{100}$ HCl. Hence there remain for brucine 27.6 C.c. of the $\frac{1}{100}$ HCl, = 0.1087 Gm. The percentages, therefore, are:

Strychnine	48.1%
Brucine	51.9%

3. In two further mixtures of alkaloids obtained from the same extract, the relation of the two alkaloids was found as follows:

	No. 3.	No. 4.
Strychnine	49.1%	49%
Brucine	50.9%	51%

4. In two separate determinations from another lot of extracts, the following relation was obtained:

	No. 5.	No. 6.
Strychnine	53.6%	54%
Brucine	46.4%	46%

5. In three further assays, each made upon a different extract, the following figures were obtained (each assay was duplicated):

	No. 7.		No. 8.		No. 9.	
	a.	b.	a.	b.	a.	b.
Strychnine	42.7	42.1	53.4	52	45.6	46.2
Brucine	57.3	57.9	46.6	48	54.4	53.8.

In order to ascertain positively whether the relation of strychnine to brucine, that is, their relative proportion, remains unaltered during the several steps of the operations above outlined, a mixture was made of 80.8 per cent of strychnine and 19.2 per cent of brucine.

A portion of the acid solution of this mixture was rendered alkaline with ammonia and three times extracted with chloroform. With the alkaloid obtained from the chloroformic solution all the operations which are prescribed for the impure alkaloids obtained from extracts were performed. Purposely no care was taken to work quantitatively, the object being to find whether there is a disturbance of proportion between strychnine and brucine when a portion of the total alkaloids is lost. The alkaloids finally remaining consumed 99.6 C.c. of $\frac{1}{100}$ HCl. For strychnine were consumed 29.8 C.c. of ferrocyanide, corresponding to 0.2785 Gm. This is equivalent to 83.4 C.c. of $\frac{1}{100}$ HCl; hence there remain for brucine 16.2 C.c. of the acid, corresponding to 0.063828 Gm. The proportion found is, therefore:

Strychnine	81 [gain 0.2] %.
Brucine	19 [loss 0.2] %.

The balance of the solution manipulated in the same manner consumed 122.6 C.c. of $\frac{1}{100}$ HCl. Strychnine required 36.3 C.c. of ferrocyanide (= 0.33925 Gm.). This corresponds to 101.6 C.c. of $\frac{1}{100}$ HCl. There remain for brucine 21 C.c. of the acid (= 0.08274 Gm.). The relation is, therefore, practically identical with the preceding, viz.:

Strychnine	80.4 [loss 0.4] %.
Brucine	19.6 [gain 0.4] %.

The total loss of alkaloids during these two operations amounted to 10.2 per cent; and yet the proportion between the two alkaloids strychnine and brucine remained unaltered.

In the five different extracts examined and reported upon by the authors, the proportions of strychnine to brucine vary between $\frac{42}{58}$ and $\frac{54}{46}$ per cent. Assuming now we had a normal extract containing 15 per cent of total alkaloids, such as is required by the British and Dutch Pharmacopœias, the percentage of strychnine might vary in this from 8.1 to 6.3 per cent; the difference, therefore, could be as much as 1.8 per cent.

Should the difference in therapeutic effect of brucine and strychnine be really as great as is claimed by Falk, it would follow that a mere determination of total alkaloids would be insufficient, but that a definite percentage of strychnine should be required, without having any regard for the brucine, which may always be assumed to be present in a quantity about equal to that of the strychnine.

A Process for Recovering Tin.

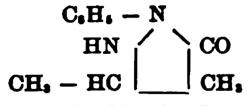
The French Society for the Encouragement of National Industry has given the prize allotted for the utilization of Works' residues to M. Martinon, for his process of recovering the tin contained in the wash waters from silks which have been treated with bichloride of tin for the purpose of giving weight.

By adding milk of lime to the water, and by properly agitating, the tin settles down in a few hours in the state of oxide, which can be readily collected and disposed of. This economy is said, for Lyons alone, to effect an annual saving of $60,000.

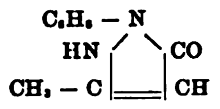
New Process for Preparing Antipyrin.

The firm of Boehringer, in Waldhof (Bavaria), has taken out a patent for a new process for preparing antipyrin. It consists of three successive operations, as follows:

1. Equivalent quantities of a compound ether containing beta-bromobutyric (or -chlorobutyric) acid and of phenylhydrazin are dissolved, the solution rendered slightly alkaline, and then gently heated on a steam bath until the odor of the compound ether has disappeared. On pouring the product into water, *methyl-phenyl-pyrazin* separates. This has the constitution:



2. The dried product is dissolved in benzol, and then shaken with some slow oxidizing agent, such as mercuric oxide. The result is dehydro-methylphenyl-pyrazin:



3. This product is finally dissolved in wood alcohol and heated with iodide of methyl to 100° C., which results in the formation of dehydro-dimethylphenyl-pyrazin, which is also known as dimethyl-phenyl-pyrazolon, or antipyrin.—After *Pharm. Zeit.*

The product is in every respect identical with antipyrin, but will no doubt have to be put on the market under another name.'

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EDITORIAL.

THE question of cutting prices is the burning question of the day, as was intimated in our reference to the subject in the last issue of this journal. We might fitly make the words "cutting" and "burning" serve for a caption to this article; since it is true that while one portion of the retail druggists are addicted to the scalping or cutting of prices, particularly on patent medicines, the other portion, not so engaged in shaving off the profits of trade, are burning with more or less indignation at such destructive methods of business.

While the AMERICAN DRUGGIST has perhaps not had as much to say on this subject as some of its contemporaries, it has not been through any failure to discern the drift of public sentiment or appreciate the importance of the questions involved in this whole business. It is rather because of its importance, and the important principles necessarily underlying its adjustment, that we have not thought it advisable to espouse or announce any particular plan for the correction of the evils under discussion.

To make our meaning a little plainer perhaps, we would call attention to the following points of fact and principle which are involved in the question: "*Shall the drug trade tolerate the cutting of prices on patent medicines?*" The first and most natural answer to this question—an answer dictated by the primal law of self-preservation—is an emphatic *negative*. And when, with what seems an abnormal display of *nerve*, the scalper asks you, "Why not?" you are ready to answer: "*Because I wish to protect my business. I cannot do business on such small margins of profit.*"

"Very well," replies the scalper, "for the very same reason that you have given I *do* scale down the profits, and in so doing I protect *my* business. This is a free country, and, as I understand it, a man is at liberty to buy and sell when, where, for how much, and to whom he pleases, so long as he violates no law. I find that by following the plan of the large, prosperous fancy stores—'sutler shops,' as some are pleased to term them—viz., the plan of 'quick' (or frequent) 'sales and small profits,' I can do more business in a week than I could when I held on to certain ironclad prices just to please other merchants who did not contribute anything to my support."

Such is the substance of the remarks made during the past ten days to a representative of this journal by a druggist who makes no attempt to deny that he cuts prices to the lowest figure at which he can dispose of his goods for a profit. His words embody the argument advanced by the most able "scalpers," and we will not insult the intelligence of our readers by presuming that in point of abstract principle there are many who will deny the force of such reasoning.

The simple fact is, there is much of truth in what the "scalper" claims. He claims to increase his business and benefit the public by selling goods at a low margin of profit. He does not pretend to do business for the benefit of other druggists. He holds that they ought to be able to look after their own trade without concerning themselves about his.

In other words, the "scalper" asserts his rights as a citizen and defies argument. So far, then, in our first attempt to correct the growing disposition to cut prices, we are confronted, not by a condition alone, but by a "condition" and a "theory."

"But," say a majority of our readers, "it is not expedient for the drug trade to engage in this business of price-cutting. The line of goods on which the druggist can make a decent profit is limited, and if we give up the profits to which we have been accustomed on certain articles—like patent medicines—our business will suffer in consequence. The manufacturer of patent medicines especially must protect us or we will decline to handle the goods." So the answer is filed, and, as the courts say, "the issue is joined." Moreover, it is pretty evident that the case is coming to a trial, and that soon.

The editors and publishers of the AMERICAN DRUGGIST are, of course, desirous of being in sympathy with the best sentiments of the drug trade, but they also desire to contribute, in so far as their influence goes, to the formation and propagation of correct views on all matters of business polity as well as on those subjects that belong to the domain of strict science. Owing to some simple, old-fashioned notions we entertain about the liberty that pertains to commerce under the American Constitution, we would be slow to condemn a man who simply bought and sold goods as cheaply as possible, and who by so doing succeeded in reducing to the public at large the cost of certain articles of general use.

On the other hand, if the majority of retail druggists, either in convention or by the general and simultaneous expression of opinion, agree to hold up a certain scale of prices on any particular line of goods, and that, in case they are not sustained in their position by the manufacturers of those goods, these druggists agree to exclude such goods from their stores, the legality of such action cannot be questioned. They have a right to protect their business as they view it. It is now well known that resolutions looking in this direction have been passed recently by retail druggists in several of the larger cities of the country, especially with reference to one article, namely, the Sarsaparilla manufactured by C. I. Hood & Co., of Lowell, Mass. The proposition of Messrs. Hood & Co. to retail druggists to reduce the price of the Sarsaparilla from $1 to 83 cents a bottle, and not less, has created no end of commotion in the trade, and many resolutions amounting to a threat of boycotting the goods have been passed by the indignant pharmacists who have received the Hood manifesto. Certain other manufacturers of patent medicines seem disposed to favor the retail druggists by holding up the original prices of goods, and announce that they will not sell to "cutters" if they know it. Here, then, it strikes us, is the key to the whole situation—the manufacturer must determine whether his goods are intended primarily for the drug trade or for the fancy-goods trade. If the preponderance of his sales must come through the drug trade, then it is plainly his duty to protect druggists first, and by united action the latter can compel such protection. If, however, goods are liable to be sold by everybody, the druggists would do well either to avoid them or sell them at current prices and say nothing about it. In this view of the case it is an almost profitless task for the retailers, or even for the jobbing houses, to construct "plans" for the abatement of cutting. No matter how excellent may be Mr. Seabury's plan, or Mr. Kline's plan, or the plan proposed a short time since by a druggist in Providence, and all of which are more or less familiar to our readers, *rebates* from jobbers will not *abate* the mischief, unless the manufacturer concludes to cut off the cutter. In fine, it is our opinion that, like water seeking its natural level, this whole question will eventually settle itself by the law of supply and demand. Boycotting may serve a temporary purpose, but it is revolutionary, and, like all revolutionary measures, it must pass away to allow of the peaceful operation of natural laws.

THE efforts made by various scientific societies and associations to secure valuable contributions to our current stock of knowledge by means of prizes, have frequently resulted in disappointment and failure, as will be acknowledged by those who are competent to judge. Perhaps the most successful body in this respect has been the American Pharmaceutical Association, though even here there were not seldom several years in succession when the committee charged with the award had difficulty in coming to a decision, not from a multiplicity of superior papers before them, but from the absence of any very meritorious features in any of them.

Most, if not all, of the associations which offer prizes have established the rule that these shall be awarded to the author of the best paper read at the annual meeting. Of course, the author of any paper which is to be read on such an occasion must either be a member already, or must at least have been proposed for membership or be present as a delegate entitled to the floor. Moreover, each author chooses his own subject, and thus there may be three or four excellent papers presented, each bearing on a subject connected with a different branch of science, rendering a choice of "the best" often quite difficult. Committees on prize essays are not generally composed of representatives of all branches of science having a bearing on pharmacy; and thus it may easily happen that the judges themselves are not fully competent to appreciate the really valuable points contained in one or more of the papers before them—the subject of which is not in their special line of study—and that, therefore, the award will perhaps go to one less worthy of the distinction. We do not believe that this has happened very often in the committees of the associations alluded to, but it has happened in other countries, and is likely to happen here some time or other. We see no other way to obviate it but to make the Committee of Award numerous enough to represent all the chief departments of science embraced within the scope of the association.

While we do not advise dropping the present method of inviting members to write essays on subjects proposed by a committee appointed for this purpose, or of inviting them to offer volunteer papers, we yet believe that a further step might be taken and that this would bring fruitful results. It is nothing else than the promulgation of certain *set prize problems* open to *general competition*, and the award of the prize to the most successful competitor. If the competition is thrown open *to all*—let us for the present suppose it restricted to all "residing in the United States"—the likelihood is that a satisfactory solution of the problem will be found, though it may, in the case of pharmaceutical associations, come from some one outside of the profession of "practical" pharmacy, while at present no association may possess a member capable of solving the problem. The first object of any association should be to advance the profession, and this can be done best by an advance of knowledge. The latter should be welcome, no matter whether it comes through a member or through a non-member. If it should come through the latter, the association would speedily find ways and means to enrol such a valuable contributor among its members. Hence, in our judgment, not only no harm but a positive benefit would accrue to an association by removing the present barrier to competition, viz., the condition that the author of a treatise—submitted avowedly, or at least impliedly, for competition—must be a member of the association.

An association might annually propound one, two, or more important problems, a solution of which would be of great practical utility. The number would, of course, depend upon the amount of funds available to be set apart for prizes; and prizes would have to be adjusted in proportion to the amount of work, time, and material likely to be required for a successful prosecution of the work. A few hundred dollars, more or less, expended in this manner would, in our judgment, become a fruitful seed, bearing good and healthy fruit in the course of time.

WHILE any intelligent pharmacist or physician will be able to devise a proper method of preparing dilutions of known strength of Koch's lymph when called upon to do so, it may nevertheless be well to describe the method approved by Koch himself, which is used by Dr. Fräntzel in his clinic at Berlin.

The following utensils are required:

1. An aqueous solution of carbolic acid containing ½ per cent of the latter.
2. Several test tubes 4 or 5 inches in length.
3. A beaker with cotton in the bottom, upon which the test tubes are to rest. [Or a test-tube stand, so arranged that the tubes will stand on a soft cushion to prevent their being broken.]
4. Absolute alcohol.
5. An alcohol lamp (or gas flame).
6. A Koch syringe, cleansed with absolute alcohol.

The empty test tubes are closed with tight pellets of cotton, and then sterilized by being heated in the flame from the bottom upward. The heat must be applied gradually along the whole tube, so as to make every portion pass through a dull-red stage. When the top is reached, the pellet of cotton may take fire externally, or may become somewhat charred internally; but this makes no difference. When the tubes are thus sterilized, they are placed in the beaker.

The dilution of the lymph is performed with the syringe, which is also used for withdrawing the original lymph from the stock bottle. If one and the same syringe is used for this purpose, the result will be correct. Different syringes vary slightly among themselves in their graduations, and hence it would not do to use two different ones unless their complete agreement was assured.

Half a cubic centimeter of the lymph is carefully and slowly drawn up into the syringe, and the contents transferred into one of the test tubes, which is, for this purpose, opened rapidly by an assistant, after which it is again immediately closed. The original stock vial is also closed immediately after withdrawing a portion of the contents.

Next, 4.5 C.c. of the carbolic solution are added. [Each syringe is graduated to 1 Gm. or 1 C.c.; hence half a syringeful of Koch's lymph is diluted with 4½ syringefuls of carbolic solution.] The result is a 10-per-cent solution of the lymph.

A syringeful of this, therefore, represents 0.1 Gm. or C.c. of the lymph.

Since the lymph does not mix readily with the carbolic acid water, it is necessary to invert the test tube several times gently. While doing so, it may be closed with the thumb, which had previously been washed with absolute alcohol, thoroughly rubbed, and then dried.

If a weaker solution is wanted afterwards, 0.5 C.c. or half a syringeful of the 10-per-cent solution is diluted with 4½ C.c. or 4½ syringefuls of the carbolic acid water in the same manner as previously described.

One syringeful (1 Gm. or C.c.) of this second solution, therefore, contains 0.01 Gm. or C.c. of the lymph, and every one of the ten divisions of the syringe represents 0.001 Gm. or C.c. of the lymph.

How Germans Smoke.

SMOKING in Germany is not a pastime. It is an art, and an art that has grouped about it a respectable number of industries. Every smoker carries a cigar case, a cigar clipper, a match safe, and usually a little leather box for the cigar tips. The tips are collected by a society organized for the purpose in each province, and are sold back to the manufacturers, for the benefit of charitable institutions. In 1885 about $100 worth of such tips were collected in the small duchy of Brunswick. The cigar case is indispensable, because the cigars are so dry they would crack to pieces if carried loosely in the pocket. For the same reason the clipper cannot be spared, and a match safe is also necessary, because German pocket etiquette forbids the carrying of anything—knife, money, or matches—uncovered in the pocket.

When an American sees a German spread out before him all this paraphernalia preparatory to smoking a two-cent cigar, he begins to understand why not only the German world of pleasure, but also a considerable section of the German industrial world, have raised a hue-and-cry whenever it has been proposed to nationalize and thereby tax more heavily the manufacture of tobacco. The German smoker is amply rewarded for all his pains preliminary to smoking by the enjoyment he derives from it.

He smokes tenderly, peacefully, meditatively. He never chews his cigar. He never sets his teeth in it. He does not snatch it from his mouth when mildly excited, nor snap off the ashes ill-advisedly. He clasps it as fondly as if it were the hand of his baby. He takes it up carefully, lays it down softly, eyes it affectionately between the puffs, drops off the ashes regretfully, and finally puts his stump in a little ash basin with a still-born sigh for "the pity of it."—*N. Y. Sun.*

NEWS FROM THE TRADE.

ENGLAND.

ACCORDING to Mr. George Seabury, American pharmacy is overrun with "muslin druggists." The particular evil that pharmacists here deplore is not so much the inevitable "cutting" and competition by other druggists, but the interference with our trade by the stores.[*] As I mentioned in my last letter, a large proportion of the trade is anxious to see this evil grappled with by the Pharmaceutical Society in their forthcoming bill. This natural feeling will be readily understood when I explain that, according to the Pharmacy Act of 1868, no person may assume the titles of chemist, pharmaceutical chemist, etc., or keep open shop for the sale of poisons and dispensing of prescriptions, who has not been examined and registered by the Pharmaceutical Society of Great Britain. Yet so successfully has this provision of the act been evaded that any combination of seven or more persons can, by merely registering as a company, open business and carry on all the trade of chemists and druggists. All that is necessary is to employ a registered and qualified chemist as assistant or manager.

This evasion of the meaning and spirit of the act was fought against by the Society and carried to the highest court in the country. The judges held that a corporate body, inasmuch as it could not be examined, did not come under the act at all. It is now suggested hat the Society should remedy this state of affairs. Unfortunately, the reasons why the Society would not succeed, if they attempted it, are not far to seek.

The present law allows a chemist's widow or executor to carry on the business after his decease, provided a qualified assistant or manager is employed—evidently a state of things more or less on all fours with the company difficulty. Nor are chemists prepared to forego this privilege, and about this subject even our trade journals are divided in their opinions. A further objection is that the government would probably oppose the bill altogether, and many of our legislators are interested in these same stores. The chairman of one of the largest is none other than one of the principal government analysts.

Your editorial note on Prof. Dunstan's researches upon salicylic acid is appreciated here, where the *raison d'être* of the investigation is not clearly seen. It has been conclusively shown that it is practically impossible to get two ordinary observers to agree within 1° C. upon the melting point of bodies such as salicylic acid. The difficulty has been lately forced upon the attention of the Pharmacopœia committee, who went carefully over the melting points of all the new organic derivatives that have been placed in the British Pharmacopœia. They were in each case taken by three or four different observers, and variations were quite noticeable and only approximately agreed. Besides this, thermometers are liable to grave inaccuracy, unless they have been corrected by standards. Perhaps the most that can be hoped is that renewed attention will be paid to the production of a purer article by manufacturers.

The case of poisoning by antipyrin reported from the States is only about the third recorded, the first having taken place last year in Germany, and one since in this country. In each case it was more the result of too frequent dosing than of an excessive dose, and none have terminated fatally. The drug has become almost too popular here, as several pharmacists have told me that they are frequently asked for an antipyrin powder as they might be for a gray powder or even seidlitz. Ten grains is the usual dose; but I have known several patients, suffering from severe neuralgic pains, take 20 grains at a time, and repeat the dose in three or four hours.

We are being inundated with a superfatted-soap craze, and severa lof the articles appear to have "come to stay." Perhaps the leading article in this line, as it was about the first, is known as "Vinolia" soap. Vinolia itself is an ointment containing oxide of zinc with a new absorbent fatty basis, which was introduced as a remedy for eczema. It quickly gained a footing, and has been wonderfully pushed by judicious and plentiful advertising, whilst the style and get-up of the goods have been first-rate. Under the names of Dermatos, Molfa, etc., superfatted soaps are advertised, and the public informed of the fearful risks they run by using soaps containing free alkali. It may be added that the soaps are only good neutral soaps (any excess of alkali being neutralized by boiling with ammonium chloride), to which ½ to 1 per cent of palm or cocoanut oil is added, thus leaving an excess of unsaponified fat.

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[*] Our correspondent evidently fails to distinguish the delicate humor of our friend Seabury's adjective. The fault is not in Seabury's jokes, which invariably assay 105 per cent or over, according to pharmacopœial standards, and not infrequently require considerable dilution to adapt them to foreign usage. It has been remarked that every time Seabury goes abroad there is a notable diminution in the number of suicides in Great Britain, and depression of the umbrella trade in the section he is visiting. No doubt the time will arrive when the standards of quality will be so far improved in that region that his witticisms will no longer require editing for export purposes.—ED. AMERICAN DRUGGIST.

Dr. William Johnstone, F.C.S., one of our public analysts, has published in the *Chemist and Druggist* some analyses of butter fat. As is well known, normal butter contains from 87.5 to 89.5 per cent of insoluble fatty acids, the determination of which satisfactorily settles the presence or absence of foreign fats. Recently he examined two samples which yielded the abnormal figures of 85.7 and 86.2 per cent respectively, and further investigation revealed that no stearic acid was present, but iso-oleic acid. Its decomposition with alkali was expressed by the following equation:

$$\underset{\text{iso-oleic acid}}{C_{18}H_{34}O_2} + \underset{\text{sodium hydrate}}{3NaHo} = \underset{\text{sodium tridacotic}}{C_{13}H_{25}NaO_2} + \underset{\text{sodium butyrate}}{C_4H_7NaO_2}$$

$$+ \underset{\text{sodium methylate}}{CH_3NaO} + \underset{\text{hydrogen}}{H_2}$$

The important result is stated that if an analyst can discover stearic acid in a sample of butter, he need have no hesitation in certifying to the addition of animal fat other than butter.

London Market Report.

MINCING LANE, February 4th, 1891.

In spite of vague rumors concerning a drug syndicate, the market remains very lifeless and dull. Export demands are unusually quiet, and buyers have shown no anxiety to speculate even at present low prices. At the auction much that was offered was bought in again, and in but one instance, that of beeswax, was there anything like a lively demand. Perhaps the lower silver rate has some effect, shellac again declining further. There is some tendency to buy up opium, which has probably touched bottom, and difficulty is experienced in negotiating on present prices for future delivery. Heavy chemicals remain firm, although the opinion is expressed that the United Chemical Company will have all their work cut out to maintain prices. Citric and tartaric acids and cream of tartar are all higher.

The following are current prices:

Acid, carbolic	per lb..	$0.12	Jalap	per lb.,	$0.40
citric	"	.36	Kola nuts	"	.12-.18
oxalic	"	.09	Mercury	"	.52
tartaric	"	.31	Calomel	"	.80
Bleaching powd.	per cwt.,	1.50	Corrosive sub.	"	.64
Camphor, crude	per lb.,	.36	Oil, olive	per gal.,	1.1-1.5
refined	"	.42-.48	Potash, chlorate	per lb.,	.11
Cardamoms	"	.24	nitrate	per cwt.,	4.40
Cascara sagrada	"	.07	Quinine, Ang.	per oz.,	.28
Cocaine, hydrchl.	per oz.,	5.2	Germ	"	.23
Coca leaves	per lb.,	.30	Rhubarb, Canton,	per lb.,	.32
Cream of tartar	"	.21	Rhapontica	"	.07
Colocynth	"	.26	Sarsaparilla	"	.28
Galls	"	.14	Senna	"	.06
Gentian root	per cwt.	3.75	Soda, caustic, 60°,	per cwt.,	2.5
Ipecacuanha	per lb.,	8.85	crystal	"	.84
			bicarbonate	"	1.68

NEW ENGLAND.

The Connecticut Pharmaceutical Association had a very satisfactory meeting at Meriden on the 3d and 4th of February. The first session began at 7:30 P.M., Mr. E. A. Gessner, of New Haven, presiding. The initial proceedings consisted principally of reports by committees, Mr. Chas. A. Rapelye, of Hartford, reporting the proceedings of the Pharmacopœial Convention in May last; E. T. Vance reported briefly on the progress of pharmacy. The Executive Committee reported an increase in membership from 230 in 1885 to 273 at present, the whole number of licentiates in the State being 520. Mr. N. D. Sevin, of Norwich, for the Commissioners of Pharmacy, reported that there had been no change in the personnel of the board, Mr. Sevin having been reappointed.

The board was reorganized by the selection of Charles A. Rapelye, of Hartford, president; Dr. J. H. Granville, vice-president; and N. Douglas Sevin, secretary and treasurer. There have been held during the year five regular and two special meetings for the examination of candidates, and in that time there have been 102 applicants received by the board, 43 of whom were passed and granted licenses. There have been eleven licenses granted on the diploma of some recognized college of pharmacy or other evidence of proficiency, without examination of the applicants, who were granted licenses on examination. Thirty-one passed on their first trial, seven on the second, four on the third, and one on the fourth.

"In regard to the method of examination, we would say the questions are usually printed, sometimes supplemented by an oral examination, if in the judgment of the board it is thought best, in justice to the applicant. A list of questions is selected that in the opinion of the board will bring out the practical knowledge of the applicant, and a copy of those used at our last examination is herewith submitted. We require that 60 per cent of the questions shall be answered correctly to enable a candidate to pass. Of the thirty who passed since the 1st of last June, the highest percentage obtained was 85, the lowest 60, the average being 68¾ per cent.

"In regard to the complaints made to the commissioners for violation of the law, mentioned at the last meeting, we would say that the stores complained of have been finally placed in the charge of licensed druggists, and the position taken by the board that the law intends every store to be under the immediate personal supervision of a licensed pharmacist has been maintained, and no complaints having been made during the last six months, we believe the law is practically obeyed throughout the State."

The treasurer reported the receipt of $711.11, and an invested balance of $1,206.71.

During the year had occurred the deaths of H. L. Parker, of Fair Haven; Roger Mack, of Danbury; Nathan Dickerman, of Waterbury; and Harvey B. Steele, M.D., of Winsted.

The following were elected members:

Thos. F. Cary and Miles F. Dally, Waterbury; Miles L. Cummings, Litchfield; Merritt McNeil, Torrington; Willis N. Barker, Frederick R. Bartlett, and Chas. H. Pinks, Meriden; Chas. F. Messinger, Clifford Thompson, Peter J. Herrity, Arthur H. Barnes, John W. Kessel, Chas. Fleischner, Geo. W. Kaiser, E. Wadeintz, and Thos. C. Trepy, New Haven; Geo. F. Lewis, M.D., Collinsville; Thos. J. R. Healy, North Grosvenordale; Abraham Freeland, Bridgeport. Honorary member, Dr. John H. Granniss, Saybrook.

At 9 P.M. the session was adjourned, and an hour was devoted to examination of the exhibit of goods arranged on tables at the rear of the hall.

E. S. SYKES, of Hartford, showed his celebrated and indispensable household luxury, "Comfort Powder" for the toilet.

LEHN & FINK, New York, had a very handsome and attractive exhibit of crude drugs and chemicals. Their new designs for show window exhibit, in form of Star Anise pattern of boxes, was unique, and one of the richest forms of show window advertisement.

WHITNEY GLASS WORKS, of Boston, through their travelling salesman, Mr. J. W. Colcord, made a good display of Torsion Balance Scales, Archibald's Perfection Suppository Machine (considered by all present who witnessed its working to be the best thing of the kind yet), the Jordan Compressed Tablet Machine (no progressive druggist should be without one), druggists' sundries, etc.

SOLON PALMER'S (of New York) display attracted many a visitor, particularly of the fair sex who ventured in, and all the members were decorated with his perfumed boutonnière.

DUROY & HAINES, of Cleveland, Ohio, gladdened the heart of many a thirsty pharmacist who was unable to bring his pharmacy with him, by a present of a sample bottle of their famous vintages.

Fairchild Bros. exhibited various forms of their pepsin preparations.

The "El Roma Hermosa" cigars by a local firm made a good display, and were freely sampled in the hall and at the banquet. It is truly the "noblest Roman of them all."

The banquet which followed was a fine affair, and was most heartily enjoyed by the 750 and more participants. The menu was a fine one and well served. After breakfast, speeches were made by the Mayor, Rev. Mr. Chapman, Dr. Draper, ex-presidents Munson, Sykes, and Sevin, Prof. Bedford, J. W. Colcord, C. S. Rapelye, and others.

Second Session Echoes.—A unanimous vote of thanks was tendered Messrs. C. I. Hood & Co. for their efforts in behalf of the retail trade, and the "plan" indorsed. Ex-President Stoughton's plan of raising $150,000 by assessments on the retail trade each year, and starting dry goods stores for the sale of dry goods at cut rates in retaliation, was not indorsed.

The Association voted to accept Mr. Osgood's invitation to spend a day at his summer residence on the Sound during the coming summer as his guest.

President Gessner in his address called attention to the matter of dram selling in certain pharmacies, and the need of the Association severely condemning the practice, as the time would soon come, were it allowed to spread, when the Legislature would take some action largely increasing the fees, much to the injury of those who kept the spirit of the law. Local associations, he suggested, should be encouraged. Attention was called to the action of certain associations having longer refused to handle proprietary goods at unremunerative prices, with the result of sooner bringing proprietors to a sense of impending danger.

Interchange of certificates by boards of pharmacy whose requirements were equal to the Connecticut standard were recommended. A Reporter on Progress of Pharmacy was recommended.

The various recommendations were adopted.

Arthur Barnes, of Fair Haven, is having his store refitted by a set of Bangs' fixtures. It will be "one of the finest" when completed.

Curron Bros., of New Britain, will open about April 1st a new store under the Meriden House, Meriden.

Kaiser & Co. are to open a new store about March 1st, at 812 Chapel street, New Haven. With the varied experience that Mr. K. has had in some of the best stores in New York and vicinity, he should be able to command success.

Mr. Geo. Kellogg, of New London, has purchased the Rogers & Rogers store in that city. His former clerk, Mr. Frank Rogers, will have charge of his old store.

The Massachusetts Board of Pharmacy held a two days' session for examination of applicants for registration on the 23d and 24th.

Mr. H. M. Whitney, President of the Board, has been seriously indisposed for two weeks during the past month with rheumatism, but is out and about again now.

Chairman Canning sent out a circular concerning the new co-operative movement, requesting replies from those who would take stock in the enterprise, provided it be adopted. He has already received a large number favorably disposed, and it is expected that ere long an organization will be effected. Those who have not as yet replied are advised to look into the matter.

J. C. **Ayer** & Co. and some twelve others are said to have given assent to the proposed coupon plan. C. I. **Hood** & Co. decline to sign, believing that when the retail trade learn the full import of it, they will find that their plan, if sustained, is of greater advantage to them.

F. B. **Butler** & Co., Lowell, expect to move into their new store about April 1st.

The city government of New Bedford appear to be taking "theirs" hot, or, at least, are making it hot for the pharmaceutic transgressors, and the same may be said sporadically in a few other places, including Boston, but it seems a pity that there are not a few more of the same sort to record.

The Massachusetts Druggists' Alliance, an organization composed principally of Boston druggists, whose aim is to protect its members against unfair prosecutions, especially for Sunday selling of cigars and incidentally as sellers of spirits for medicinal purposes only, have introduced a bill into the Legislature to permit druggists to sell anything on the Sabbath for which there is a public demand, excepting liquors. Why except these?

The entertainment committee appointed to provide attractions and arrange for the next meeting, held its first session the 24th to decide upon time and place of holding the meeting. It is proposed to make it more than usually attractive.

The coupon plan as proposed by the conference committee does not seem to be meeting with much favor among the New England pharmacists, and the better it becomes understood the less likelihood there is of its being accepted. The Lynn association recently appointed a committee to draw a resolution in opposition to it unless radically changed.

Mr. J. C. Longfellow, of Bradford, a former pharmacist of Haverhill, appears to be having hard luck of it. He was recently arrested for selling liquor, and sentenced to pay a fine of $100 and three months in jail, from which there would seem to be no escape.

The medical fraternity, in their attempts to secure the passage of a bill forbidding the practice of quacks, are having about as hard sledding as the pharmacists did in obtaining the passage of the pharmacy bill. It took about fourteen years and ten different attempts before succeeding. The medical bill stands no show this year.

The Democratic party in the State are opposed to commissions of any kind unless they are "in it."

G. W. **Christey** will soon open a new store in Haverhill, and rumor has it that two more are likely to be added to the number ere long.

CHICAGO.

The trade here is much interested in the new patent-medicine schemes which certain manufacturers are striving to introduce; but the circular which C. I. Hood & Co., of sarsaparilla fame, has sent out, and especially the contract which all dealers in their goods are expected to sign, has created the most discussion, and Chicago druggists seem to be opposed to their plan. One prominent State street proprietor wrote to Hood & Co. refusing to sign, and declared that he would do all in his power to prevent others from signing. However, this same gentleman has stated that he would favor the plan were the minimum price placed at one dollar, instead of eighty-three cents as at present.

At a meeting of the Retail Druggists' Association held Friday, February 6th, at the Sherman House, this matter was thoroughly discussed. The general sentiment seemed to be in favor of discontinuing the sale of Hood's Sarsaparilla altogether, unless the minimum price was placed at one dollar. A resolution to that effect was passed by a unanimous vote, and a copy of the resolution has been sent to Messrs. Hood & Co. Several of the druggists present, who had already signed the contract, announced their intention of withdrawing their signatures, and a committee was appointed to visit the balance of the trade and secure their withdrawals also. The sentiment of a large majority was expressed by a South-Side pharmacist, who said that if Messrs. Hood & Co. were earnest in their desire to serve the retail drug trade and to prevent their goods from being sold by cutters and dry-goods stores, they could easily find out what jobbers were supplying them, and could then cut off their supply. It is a well-known fact in the trade that one, and probably two, of our wholesalers are selling "The Fair" and other department stores, and a fact so generally known ought not to be difficult to prove.

Chicago druggists are fortunate in having one of their number in the Legislature at Springfield; and in **Mr. Emil Thiele** they have the right man in the right place. Mr. Thiele has already bestirred himself to reduce the exorbitant charges for telephone service exacted by the Chicago Telephone Company; and if one may judge by the enthusiasm and unanimity of the trade, the desired result will be accomplished. When Mr. Thiele first went to Springfield, he mentioned to some friends his intention of bringing the telephone matter before the Legislature, and generously offered to stand the expense himself; but the druggists here would not consent to this, and have contributed about five hundred dollars to a fund for that purpose.

MR. WM. BODEMANN is one of the most active members in securing needed reforms, and his efforts in behalf of his brother druggists are noticed and appreciated by them.

Plans have been submitted and specifications drawn for a four-story building for the Illinois College of Pharmacy, to be located at Twenty-fifth and Dearborn Streets. This edifice, when finished, will be the finest and most complete of its kind in the country. It will be ready for occupancy about May 1st, 1892.

Messrs. Adler & Sullivan, the architects of the Auditorium Building, have designed a winter residence, to be built near Biloxi, Miss., for MR. I. GILES LEWIS, of Robert Stevenson & Co. Mr. Lewis expects to go South about March 1st.

MR. GEO. UMSTED has opened a new store at Centre Avenue and Adams Street.

It is rumored that a former clerk of Buck & Rayner's is to open a pharmacy under the Leland Hotel. It will be one of the handsomest in the city.

MESSRS. ROGERS & DIAMOND, the druggists in the Grand Pacific Hotel, will move May 1st into the store next door to their present location. It will be completely remodelled, and, judging by a sketch of the interior shown the writer, it will be extremely attractive. Mr. Rogers expects to start soon for Las Vegas Hot Springs, New Mexico.

GEORGIA.

The estate of T. J. FLEMMING, of Augusta, has sold the drug store to Messrs. Crouch Bros., who are wide-awake young business men and deserve all the success they have attained. The store has been well identified in business circles for the past twenty years or more.

THE STOTHART, MCMILLIAN CO. have lately opened a cut-rate drug store in Augusta, and it is hoped for the good of the drug business that they will not succeed.

PROF. H. C. WHITE, of the State University, went down to Savannah to attend the meeting of the Agricultural Society which convened the 11th and 12th of February.

An effort is being made to organize a board of health at Carrollton.

DR. CARRINGTON, of the United States Marine Hospital Service, stationed at Savannah, has been quite ill for several weeks, but has sufficiently recovered to be at his post again.

DR. JOHN G. LAMAR, of Dawson, stopped over in Savannah while on his recent trip.

REID & Co.'s Drug Store, of Savannah, is soon to be sold in the interest of the estate for division.

DR. JAMES B. WRIGHT, of Augusta, and late manager of Flemming's Pharmacy, has been spending the week prospecting in Savannah.

THE HALTIWANGER-TAYLOR DRUG CO., of Atlanta, are winding up their affairs to go out of business.

Among Brunswick's representatives in Savannah recently was DR. W. BERRIEN BURROUGHS, who is proud of his city's prosperity and energy.

ASA G. CANDLER, of Atlanta, finding that the manufacture of proprietary goods is more profitable, is selling out his drug business to devote his time more particularly to two or three excellent preparations.

KANSAS CITY.

Since our great boom has subsided the reaction has set in and business is somewhat dull. Most of the druggists are compelled to cut down expenses and to run their establishments with as little help as possible. On this account quite a number of drug clerks are without situations just now, and it looks as if openings were few and far between. Prospects are that business will soon improve rapidly, and again give employment to those who lost their places this winter.

Some of our large dry-goods firms are trying their best to take the patent-medicine trade from the retail druggists. To accomplish this they are, as a matter of course, cutting prices on everything. Castoria is sold at 28 cents; Carter's Little Liver Pills, 16 cents; Ayer's Sarsaparilla, 79 cents; Barker's Cough Syrup, 60 cents; Warner's Safe Cure, 90 cents; and quinine capsules are sold for almost nothing.

They not only cut on patent medicines, but also cut on groceries and almost every other line of business except their own.

To the careful observer their actions look to be a case of big fish eating little fish.

The retailers of this city have now taken steps to protect themselves from firms who sell more than one line of goods.

About a hundred of the retail merchants of this city met in the rooms of the Commercial Club recently and perfected an organization with Mr. L. E. Irwin president. They declared against so-called big monopolistic stores wherein articles outside the legitimate line are sold. The following gentlemen represented the retail drug trade of the city: Mr. H. C. Truala, Mr. C. E. Corcoran, and Mr. Charles Gebauer.

Mr. Corcoran said that an effort had been made recently among the retail druggists to get up a meeting of this kind, and he was glad to see it being done now. Although these firms had a right to sell as they pleased, they should be convinced that it was a poor policy, the bad effect of which all business would feel in the end. After deciding to meet again, a committee was appointed to draft by-laws. It was suggested that the association have a newspaper organ, but nothing was done in the matter.

THE GEM DRUG STORE was bought at auction by Meyer Bros'. Drug Co. for $3,800.

R. M. SCOTT now has a "desk" at Meyer Bros'. All his friends are glad to see him "climbing up."

The alumni of the College of Pharmacy would like to know the addresses of Samuel G. Berry and Ernest Gillam, class of '88–'90.

HARRY WICHMAN, Tenth and Forest, is senior at the Kansas City College of Pharmacy and is dead sure to get the "sheepskin."

SPENCER SCOTT is now a bookkeeper at Bulleene, Moore, Emery & Co.'s. He expects to return to the drug business again in the spring.

DR. C. L. HAMILTON, well known among drug circles here, is visiting Chicago this month. He is now practising medicine at Lathrop, Mo.

ARCHIE MEADOWS has returned from a trip through Southwest Missouri. He reports a pleasant and profitable visit in the mining regions, but says all roads lead to Kansas City.

The alumni of the College of Pharmacy will meet at the College building Tuesday, March 10th, promptly at 7:30 P.M., to prepare for the commencement exercises.

JAS. E. GUTRIDGE, class '89–'90, is now a senior at the St. Louis College of Pharmacy. He reports having a "good time," and is keeping up his studies as well.

The alumni of the University Medical College met at the college building Friday evening, February 13th, and made arrangements for representation at the commencement. The regular annual meeting for election of officers, etc., will be held Friday evening, March 13th.

The University Medical College will hold its commencement exercises at the Warder Grand Opera House, Saturday evening, March 14th. The graduating class have some elegant souvenirs of the occasion in their invitations, which are printed from elegant steel engravings. Prof. Flavel B. Tiffany will deliver the valedictory and Prof. G. T. Blanton, of the Kirksville (Mo.) Normal School, will deliver the annual address. After the exercises the alumni banquet will be held at the Centopolis Hotel.

The commencement exercises of the College of Pharmacy will be held at the Y. M. C. A. building, Tuesday evening, March 17th. Bishop Usher will deliver the annual address, Prof. Julius G. Kiefer will deliver the valedictory address. Mr. I. J. Brown, of Leavenworth, is "down" for a speech. Dr. Claude C. Hamilton, president of the alumni, will deliver the alumni medals. The remainder of the slate is not yet made out.

Several of our druggists, among them C. E. Corcoran, the ex-president of the State Association, visited Jefferson City last week to see the new pharmacy bill on a safe footing to pass the State Legislature. They all report a favorable impression of our "farmer" Legislature, and think it made of better "stuff" than the one of two years ago. The new bill prevents doctors from registering without examination, provides for the prosecution of druggists who do not employ registered clerks, and permits graduates of pharmacy to register by diploma without examination.

At the last meeting of the Kansas City Pharmaceutical Association the subject of C. I. Hood & Co.'s circular was discussed. In this circular Hoods allow the druggists to sell their sarsaparilla, etc., at 83 cents per bottle. This does not cause a rippling smile to play over the faces of our Kansas City brethren, and they justly entered a protest to Messrs. Hood & Co. The druggists all over the country should oppose this method of sanction to "cutters." The officers of the Association now are: S. S. Ball, president; C. C. Giesick, secretary; C. Federman, treasurer.

MICHIGAN.

A. D. KIRBY & Co., of Lansing, have sold out their stock and will retire from the drug business.

THE DETROIT WHITE LEAD WORKS have increased their board of directors from three to five, and elected the following members of the board: Ford D. C. Hinchman, Horace M. Dean, Ford H. Rogers, George Peck, and Henry T. Thurber. All of the present officers were re-elected, as follows: F. D. C. Hinchman, president; H. M. Dean, vice-president; F. H. Rogers, treasurer; and C. B. Shotwell, secretary.

MR. PECK HORACE's drug store at Walton has changed hands, B. F. Stone being the new owner. He promises the store shall lose none of its popularity under his management, and while the citizens regret deeply the retirement of Mr. Horace, they have full confidence in the ability of his successor.

STOWELL H. DIMMICK, one of Ypsilanti's oldest druggists, died of pneumonia at his home on Ellis street after a short illness, aged 68 years. Mr. Dimmick was one of the pioneers of the vicinity, coming there from the East at an early day. He first was employed by Ezra D. Laye, who was at that time engaged in the nursery business. Later he was clerk in a drug store, and then about the year 1847 went into business with a drug store of his own. He was the second oldest druggist in Ypsilanti, Mr. Erastus Samson, who is still in business, having opened a store in 1842.

At the last meeting of the Detroit Medical and Library Association, the secretary was instructed to draft a petition to the legislature, asking that body not to discontinue the State Board of Health, as recommended by Governor Winans in his message. The petition will follow in the line of resolutions adopted by the Society some few weeks ago, and will be signed by the individual members of the association.

MISS NETTIE RUST, a trusted employee of Parke, Davis & Co. for many years, died at New Orleans February 10th. She was in poor health, and had taken the trip with a party of friends, hoping it would benefit her. Dr. Jas. Cleland, Jr., was one of the party, and attended Miss Rust until her death.

New Baltimore, Mattawan, Van Buren County, and Walkerville, Ont., are all struggling with epidemics of measles.

B. L. BUDD, of Cassopolis, and DR. LAUGHTON, of Battle Creek, have purchased "Forest Hall" at Diamond Lake. They will convert it into a sanitarium.

H. J. MILBURN & Co. have filed articles of incorporation with the county clerk. Their purpose is "the manufacture and sale, at wholesale and retail, of drugs, surgical and dental instruments, and pharmaceutical products." The world will be their field. The capital stock is $22,000, all paid in. The incorporators are Henry J. Milburn, Clarence G. Stone, and J. Frederick Hartz. Mr. Milburn is one of the oldest and most prominent druggists in the country, and is well known throughout the United States as the senior member of the late firm of Milburn & Williamson. His interest was bought out by Griggs and Ingram, who, together with Mr. Williamson, formed the new firm of Williamson, Ingram & Griggs. Mr. Stone has an extensive acquaintance with the trade, having been connected with McKesson & Robbins for a number of years. Mr. Hartz is still a young man, but has unusual ability, and for the last eight years has had charge of Mr. Milburn's surgical-instrument department. This addition to the list of Detroit's manufacturing pharmaceutical houses bids fair to prove highly successful under the direction of its experienced founder, and the AMERICAN DRUGGIST joins with its correspondent in wishing the new house a long and prosperous career.

A lady of Windsor is a sufferer from headache, and her physician gave her a prescription calling for antipyrin. February 18th she sent it to a West-End drug store to have it filled. The proprietor was not in, and the prescription was put up by his assistant. Shortly after taking a dose of the medicine, she was seized with violent cramps, and the physicians who were called, on inspecting the remainder of the medicine, found that cocaine had been dispensed instead of antipyrin. Owing to the paralyzing effect of the cocaine on the walls of the stomach, it was found impossible to induce vomiting, and efforts to remove the poison with a stomach-pump were only partially successful. Later she fell asleep, and at last reports was resting easily; but the physicians were unable to say whether she would recover or not.

This accident seems to have been simply the result of carelessness, as the two bottles were side by side on the shelf, and the clerk, who had been in the habit of dispensing cocaine for another customer, absent-mindedly reached up and got hold of the wrong bottle. It is wonderful how easily one gets into the habit of taking a bottle of some familiar preparation from its accustomed place and neglecting to closely examine the label. In the case of powerful remedies the adage, "A place for everything, and everything in its place," hardly seems to apply. Both the proprietor and his assistant are almost frantic over the serious effect of the mistake.

CINCINNATI.

THE annual meeting of the Cincinnati College of Pharmacy took place at College Building, West Court street, at 8 P.M., January 13th, 1890. The occasion was the beginning of the fifth decade of the existence of the college, and the large lecture room and spacious laboratory were arranged and lighted to receive the numerous friends and members of the Society. Among the visitors were Messrs. Hechler, Bower, and others of the Ohio Pharmaceutical Examining Board, and a number of the trustees of the Ohio Retail Druggists' Insurance Association.

Among the reports submitted showing the work done during the past year and the progress made by the school was that of the recording secretary, containing a recommendation to institute a post-graduate course, which would make, according to its provisions, practically a three years' term of instruction.

Mr. C. P. Rindeys, many years treasurer of the College, formally withdrew from active work in the Society, having retired from the drug business to take up another calling.

Two new members were elected, C. G. Merrill and W. Simonson.

In recognition of his long service as lecturer and laboratory instructor in the College, and also of his labors in behalf of the progress of pharmacy, the name of Professor J. F. Judge was placed upon the roll of honorary members.

The following officers serve during the following year: President, H. Wrede; Vice-President, George Eger; Recording Secretary, A. Meininger; Treasurer, C. Freund; Corresponding Secretary, W. Simonson.

A substantial lunch closed an enthusiastic and profitable meeting, long to be remembered by all as the beginning of a new era in the prosperous career of the College.

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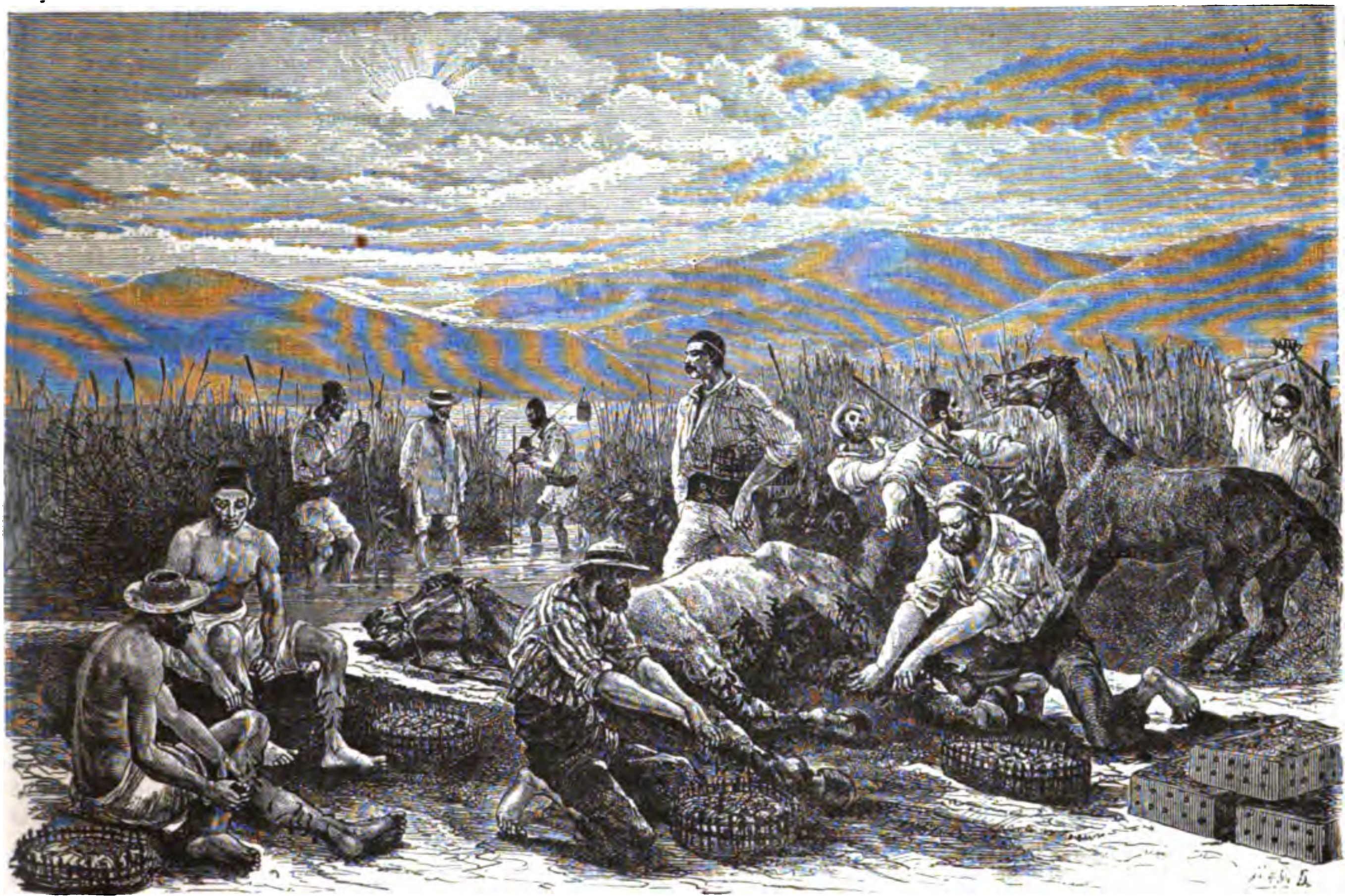
LEECH FISHING IN GREECE.



Catching Leeches in Lake Topolias.

It is not known with any certainty how long leeches have been used in medical practice, but there is no doubt that in some parts of Asia it antedates historical writings. In Greece they were mentioned in medical writings of the century preceding the Christian era, and they came into use in Italy somewhat later; but it was not until the middle ages that they were commonly employed in Central Europe. Although they are by no means so often resorted to now as in the days when blood-letting was more in vogue, they are still in pretty constant demand, owing to the relief which follows the local abstraction of blood in certain cases of limited inflammation, and which is not to be wholly accounted for by the quantity of blood drawn.

There are a number of genera and a great variety of species, most of them being found in fresh water. Some, however, inhabit the sea, and still others live upon land. A species of the latter infest the island of Ceylon, and were described by Sir James E. Tennant as being about an inch in length and about the size of a knitting needle, but capable of distention to the thickness of a quill and to the length of about two inches. It can penetrate the meshes of the finest stocking, and those who have occasion to walk through tall grass or among shrubs find it necessary to protect their legs with leech gaiters of closely woven cloth, leather, or rubber boots. Horses and other animals are rendered frantic by their attacks, and even have been killed by them. They swarm in the grass of the warm and moist valleys of the Himalayas of India, as well as in those of Sumatra, Java, and some parts of South America. Fresh-water ponds in this country are occasionally so infested as to prevent their being used for bathing. While our native leech is often used for blood-letting, the larger varieties imported from Northern Europe are generally more esteemed. The leeches of Southern Europe and of Africa are not so large, but they form a considerable proportion of the commercial supply—particularly those from Greece, where their capture has been a local industry for many generations. Australia is said to abound in leeches, and to furnish a very considerable supply of those used in Europe and America.

In England, and especially in France, the propagation of leeches in artificial ponds has been undertaken as a paying industry, but the bulk of the supply is probably derived from natural sources.

A French writer, Mr. Henri Belle, who spent many years in Greece, has given a very graphic account of the methods pursued in that country for catching leeches, from which we derive the following text and our illustration. It will be evident to our readers that a Society for the Prevention of Cruelty to Animals would have a fine field for effort in that portion of Europe.

Speaking of a visit to Lake Topolias (ancient *Copais*), Mr. Belle says:

We had approached the mouth of the Cephissia, and our boat again entering the rushes brought us to the base of a little hill where the meandering walls indicated the site of the ancient Orchomenus, one of the richest and most powerful cities of heroic Greece; but the village which now exists—miserable and fever-stricken—has the barbarous name of Skripou. On the shore of the lake eight or ten human beings, lean and in rags, were executing curious movements, the reason for which we could not understand. They went to the depth of their knees into the water, standing as motionless as herons watching for their prey; then, seating themselves on a stone on the land, they scraped with great care their legs, which were covered with black spots, like the skin of a leper. As we were jumping from stone to stone to approach them, the steward of Mr. S—— told us they were fishers for leeches. The savage appearance and gallows look of these curious workmen were not calculated to inspire confidence. Dressed in dirty rags, they spend their days in the marshes, stirring the water with a stick. The leeches, which live among the reeds, arrive in myriads and attach themselves to their legs, from whence they are removed and placed in barrels or boxes pierced with holes and filled with wet rushes. At this trade these creatures can make twenty francs a day, but their fishing season lasts but two or three months, and half their gains will then have been spent for drink. There is nothing so hideous as the interior of the huts where these miserable men pass a part of each night in brutish drunkenness, replacing their impoverished blood by alcohol, which inflames the thousand little wounds caused by the leeches. No Greek would consent to follow such a trade, and all the fishermen there belonged to that interloping class which inundates the ports of the Levant, having no nativity and seeming to be the result of the vices of all the nations in juxtaposition in that corner of the world.

At a little distance from his comrades an old fisherman sat in the sun in the act of removing the leeches he had just caught, and nothing is more horrible than his lean shins, bleeding and covered with voracious worms which his trembling hand could hardly remove. His hoarse voice had the smothered sound of a dying man, and through the holes in his shirt one could see his emaciated body, which resembled a skeleton with the horny, brown skin shrunken to the bones. His eyes, half veiled beneath their purulent lids, had lost all expression. An old hat without a top showed the crown of his bald head covered with pustules and scabs, and from the whole emanated an odor of alcohol. For more than thirty years, said our guide, this man has come here to fish for leeches. No one knows his name or country. He has himself forgotten where he was born and where he came from. Here we call him the old Yuruck, because certain words in his unintelligible jargon lead us to believe that he belongs to that race of Turkoman Yurucks of which a few tribes are established near Solanique, and near Brousa in Anatolia. He earned a great deal of money in his day, but the passion for *raki* ruined him, and then the commerce has become less and less lucrative on account of the combination of the Smyrna merchants. Now he works at his task, and drinks at night what he receives for his work—that is, four drachmas. I engaged him for a month, but it was a very poor speculation, for the leeches paid no more attention to his old legs than they did to the sticks which moored the boats. It is not at all rare, however, to see many of these fishermen amass quite a large sum by the end of each season. These have improved their industry, for it is not only the legs of themselves and their less fortunate companions which they expose to the leeches, but those of horses, which they buy in the country. The poor animals which serve as bait are painful to look at with their wounded sides and swollen legs. They know so well the sufferings which attack them each day that they oppose it with all the resistance of which they are capable. But their strength, already weakened, succumbs rapidly beneath blows, and the agitation of the water during the brief combat only attracts a larger number of leeches. Soon a convulsive trembling agitates the miserable beast, and they hurry him out of the water so that he will not become too weak and fall in the liquid mud and smother. More often, as soon as he has taken a few trembling steps, he falls on his side, his nostrils close, and the dim eyes show that life is nearly ready to leave the worn-out body. His legs and abdomen are covered with hundreds of leeches gorging themselves with blood and forming a glutinous coating horrible to see. After they have pulled the leeches off, the horse, if he has strength to get up, is allowed to wander four or five days in the neighboring waste land, where the hard and sparse plants upon which he grazes do not suffice to repair the forces which he has lost. When he is old and difficult to sell, the last fishing days above all are, for the poor animal, days of atrocious torture. Without relief or mercy, and without even time to eat, he remains plunged in the lake, and grows weaker and weaker, and the whole body is covered with the famished vermin. I have even seen the eyelids disappear entirely under a thick layer of leeches. He has ceased to walk, and they have to drag him out of the marsh; and while he is yet alive and in convulsions of agony he is skinned, because the skin is worth a few drachmas. Altogether it is a horrible spectacle, this *exploitation* of the beast by man and of the man by himself, and we would not advise sensible tourists to visit the leech fisheries of Topolias. If, however, they do and are hungry, they will find abundance of fish, especially monstrous eels, large as young boas, and with a delicious flavor.

[ORIGINAL COMMUNICATION.]

FLUID EXTRACT OF IPECAC.

BY

PROF. J. U. LLOYD,

Of Cincinnati, O.

(Continued from page 69.)

STANDARDIZATION.

Although it had long been known that the alkaloid emetine dominated the emetic constituents of ipecac,[*] until a recent period that fact had not been seriously considered in the establishment of a comparative strength for galenical preparations of that drug. This is shown by the writings of leading pharmacists preceding 1880, for the therapeutic value of fluid extract of ipecac was until that date considered from a basis of total extractive matters. It was evidently accepted that emetine was but one of several factors, and writers probably felt that it would be unwise, from a consideration of this one principle, to attempt to affix a definite value to a preparation that possibly carried so many unknowns. Surely no man will argue that Prof. Procter and Dr. Squibb were not aware of the importance of emetine, and none can deny that these talented men and their associates were in every way capable of devising methods of alkaloidal standardization of fluid extract of ipecac, had they at that time deemed it wise to do so. Hence, not until 1885 was it (to my knowledge) prominently advocated that ipecac and its preparations should be assayed. Then Dr. A. B. Lyons[†] strongly urged the establishment of a "ready means of ascertaining the *quality* of preparations of this drug," and he announced that this object could be safely accomplished by assaying its galenical preparations for emetine. He reviewed the methods that had been suggested for determining the emetine value of ipecac, and contributed a valuable treatise to the literature of that subject. However, the chief part of his paper was devoted to the assaying of powdered ipecac, which in my opinion (and Dr. Lyons will agree) is but one step in the establishment of a method for making a responsible fluid extract; for, by faulty manipulation, a poor preparation can be made of a good drug. Shortly after this (1885) Mr. W. A. H. Naylor,[‡] before the British Pharmaceutical Conference, advocated that the fluid preparations of ipecac be made by alkaloidal standard.[§] Then (1887)[‖] Mr. H. W. Snow contributed an exhaustive paper on the analysis of ipecac and its preparations, which paper is the most valuable to that date. Next Mr. John Williams[**] and Mr. John E. Pennington[††] contributed to the assay of the drug, and Messrs. J. O. Braithwaite, J. C. Umney, and T. P. Blunt[‡‡] read papers before the British Pharmaceutical Conference (1889) on the alkaloidal assay of ipecac preparations. These were followed by an elaborate paper from Prof. W. Simonson, of Cincinnati,[§§] on the emetine value of fluid extract of ipecac, which for patient research and analytical data stands unsurpassed. These papers, together with the tone of all the standard works on pharmacology, finally led numbers of pharmacists to a thoughtful advocacy of an alkaloidal standardization of the preparations of ipecac. The efforts of zealous supporters of standardization from among prominent manufacturing pharmacists have also given an impetus thereto, the most enthusiastic probably being Parke, Davis & Co., Eli Lilly & Co., the Edgar L. Patch Co., and Frederick Stearns & Co. These well-known firms have for some time severally advocated the alkaloidal standardization of alkaloid-bearing galenicals, ipecac being prominent. They have each a generous business, their preparations command the respect of pharmacists at large, and it is to their commercial interest as well as professional reputation to improve methods and establish uniform processes; and I believe that their experience is such as to warrant a careful consideration of their views by apothecaries. I believe, however, that methods that are feasible in some cases may not be practicable in some others, and I refer now to persons, who manipulate small amounts, with whom processes adapted to manufacturers who work on a large scale may not be economical.[‖‖]

However, whatever may be the conclusion of some apothecaries (not excepting, perhaps, even the opinion of the United States Pharmacopœia Committee) in connection with this subject, and the individual views of writers like myself, it is evident that those who manufacture fluid extracts for the market must in the near future give an assurance of an assay valuation for such as are prominently alkaloidal, irrespective of the United States Pharmacopœia. Indeed, the tendency of the times teaches me to believe that pharmacists are likely to demand of manufacturers more, perhaps, than it would be judicious to expect of drug-store manipulators, to most of whom, with the constant interruptions that necessarily accrue from the retail business, elaborate assaying is neither practicable nor remunerative. Standardization will, it appears, possibly exclude from profitable competition most of those who manufacture on a small scale for personal needs, unless methods for making these assay determinations are simplified and cheapened. The expense of assay determinations, the time consumed thereby, and the uncertainty of results, together with the various losses indirectly incurred by neglect of the business of the store, seem to me to indicate that but few apothecaries will now feel warranted in preparing standardized fluid extracts for their own consumption. It is not, however, altogether a question of capacity, as some believe, for the methods of assay open to manufacturers are open alike to apothecaries, who, as a class, are as capable as are the manufacturers; and I believe, as a rule, the better share of the assay processes has been evolved by apothecaries. It is simply a bread-and-butter problem. Will it pay to make standardized galenicals, or is it best to buy them? Standardization is a small matter for a manufacturer who employs one or more assayists. Where thousands of pounds are to be determined the expense per pound is trifling, but the labor and expense of assaying a batch of

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[*] Emetine was discovered in 1817 by Pelletier and Magendie.

[†] An able paper read before the Michigan Pharmaceutical Association.

[‡] This paper appeared about the same time as Dr. Lyons' publication and was evidently written independently.

[§] Pharm. Journ. and Trans., Dec., 1885.

[‖] A paper read before the Michigan Pharmaceutical Association, 1887, p. 98.

[**] Pharm. Journ. and Trans., Sept., 1887.

[††] Proc. Am. Pharm. Assoc., 1888.

[‡‡] Pharm. Journ. and Trans., Sept., 1889.

[§§] Proc. Amer. Pharm. Assoc., 1889., p. 188.

[‖‖] To the writer the working process selected is immaterial. If standardization *will standardize* and establish uniformity and can be made practical, the move will be supported. All sides of the problem should be considered, however.

100 C.c. of fluid extract of ipecac are the same as those of assaying a single batch of 100 pounds or 1,000 pounds, and I fear that even the most expert and talented apothecaries (excepting from principle, pride, or from an educational standpoint) cannot afford to undertake the task and thereby neglect their stores for the trifling return that comes from making small amounts of fluids.

In connection with the subject of assaying fluid extract of ipecac for emetine and establishing the process for making the fluid extract, we are also led to problems embracing a comparison of extractives and ultimate valuation of products. These were, as has been stated, outside the field that confronted Prof. Procter when he devised the present United States Pharmacopœia process, and can only be satisfactorily determined by patient investigation. Since, however, the era of assaying galenicals is upon us, or close to us, and as fluid extract of ipecac will assuredly appear in the first list, it is imperative that we now make comparisons of processes from a standardization point.

Notes on Various Medicinal Chemicals.

[From E. Merck's Circular, January, 1891.]

Cathartic Acid (Acidum cathartinicum).—The commercial article is, properly speaking, merely a purified extract of senna, containing the active principles. It contains 20 to 25 per cent of mineral matter.

Pure cathartic acid is excessively prone to decomposition. All attempts made by Merck to prepare it in a pure state have so far resulted in failure. He has therefore decided to take the article from his list.

Embelate of Ammonium.—The ammonium salt of embelic acid, the latter being an organic acid derived from the fruits of the East Indian *Embelia Ribes.* The acid itself, when pure, appears in magnificent orange-red crystals, insoluble in water, but soluble in alcohol and chloroform. The ammonium salt possesses, according to Warden, powerful tænicidal properties, being successful when all other tænicides failed. It has the additional advantage of being tasteless. In the case of children, the dose is 3 grains; in the case of adults 6 grains or a little more. The remedy is best given mixed with syrup or honey, and a dose of castor oil should be administered both before and afterwards.

Ammonium Telluràte.—A white, amorphous powder soluble in dilute acids. A. Brociner has recommended this salt as a color reagent for various proximate principles. One part of it is triturated with 20 parts of sulphuric acid (*Journ. Chim. et Pharm.*, 1890, 468).

Silver Potassio-Cyanide, or double cyanide of silver and potassium (AgCy.KCy). This salt is in form of white crystals, soluble in water. According to Behring, it is a very efficient antiseptic, while its toxicity is comparatively slight in the quantity requisite to produce antisepsis.

Aristol.—This body has been used for some time as an efficient antiseptic. It is an iodine derivative of thymol, forming a reddish-brown, odorless powder. It is insoluble in water and glycerin, but easily soluble in ether, chloroform, and fatty oils. In preparing solutions of aristol, *no heat must be used,* because this causes a change in the molecular arrangement of the compound. Even exposure to light has this effect.

Aristol is either applied in its pure condition, being dusted upon the affected surface, or it is employed in 10-per-cent solution in ether, collodion, butter of cacao, etc.

Gold Bromide.—According to Goubert, bromide of gold is a most efficient remedy in epilepsy. There being three different bromides of gold, and Goubert being disinclined (as Merck states) to state which of them he used, recourse was had to what Goubert published on the subject. In his paper ("Nouveau traitement de l'epilepsie," Paris, 1889) he reports that he used an aqueous solution of the salt. This permits the conclusion that he used the water-soluble tribromide. But, unfortunately, this salt is very unstable. It is, therefore, recommended by Merck to employ in place of it the much more stable double salt next mentioned:

Gold and Potassium Bromide—formula: $AuBr_3.KBr.2H_2O$. This is in form of well-defined crystals, soluble in water and alcohol with a reddish-brown color.

The corresponding sodium salt exists ($AuBr_3.NaBr$, anhydrous), but it is very hygroscopic.

Benzoyl-Guaiacol (Guaiacol benzoate, or Benzosol).—This synthetic compound has the composition:

$$C_6H_4 \left\{ \begin{array}{l} OCH_3 \text{ (in ortho position).} \\ OCOC_6H_5 \text{ (in meta position).} \end{array} \right.$$

It forms a colorless crystalline powder, almost odorless and tasteless, insoluble in water, easily soluble in chloroform, ether, and alcohol. It contains 54 per cent of guaiacol.

This compound permits the introduction into the stomach of quantities of guaiacol which it would be impossible to administer of the pure substance owing to its caustic properties. Prof. Sahli, of Berne, expected great benefit from using this compound in phthisical patients, but reported unfavorably after having tried it. On the other hand, Walzer obtained as good results with it as with creosote.

Bismuth Sodio-Salicylate.—This is prepared by mixing molecular weights of sodium salicylate and bismuth salicylate. Water dissolves the former and leaves the latter behind.

Caffeine Tri-iodide—or, more properly, hydriodide of di-iodo-caffeine—$(C_8H_{10}N_4O_2I_2.HI)_2.3H_2O$ [?], forms long, dark-green prisms having a metallic lustre and easily soluble in alcohol. On shaking the salt with water, iodine passes into solution. Granville has recommended this salt for internal use, because the iodine is quickly set free in the stomach without producing the disagreeable symptoms caused by alkali iodides or the iodine compounds of quinine.

Cetrarin.—The substance extracted from Cetraria has been found to be a stimulant to peristaltic motion, and to increase the number of red and white blood corpuscles in man. It is, therefore, indicated in chlorosis, the dose being 1½ to 3 grains daily.

Copper Arsenite.—It was J. Auld who drew attention to the very beneficial effects derived from arsenite of copper in acute gastric troubles.

The salt is best administered in very small, often-repeated doses. In cholera the daily dose would be about $\frac{1}{100}$ grain contained in 4 to 6 fluidounces of water, a teaspoonful of this solution being given at first every ten minutes, later every hour, or, if required, every half hour. In severe cases of true cholera, of cholera infantum, and of dysentery, the remedy has been found frequently to cut the disease short.

Hashishin is a name of the extract of Indian hemp prepared with alcohol of 90 per cent and washed with water. From this is prepared the

Extractum Cannabis Indicæ pingue (fatty or fat extract of Cannabis Indica). This is made by dissolving 5 parts of "hashishin" in 95 parts of butter. The resulting compound is highly recommended by Germain Sée in gastric neuroses and dyspepsia, for removal of the pain and restoration of the appetite. The extract being very finely divided, a small quantity only is required to have the desired effect. The daily dose of the compound is about ¾ grain. Larger doses (1½ grains and more) produce hemp intoxication. Merck suggests butter of cacao in place of butter, as the former is less liable to decomposition.

"*Hydrargyrum glutinopeptonatum hydrochloratum.*"—This is a new mercurial compound, containing 25 per cent of mercuric chloride in combination with peptones derived from the digestion of grain albuminoids. It is very stable, soluble in all proportions of alcohol or water, but very hygroscopic. For this reason it is best kept in 10-per-cent aqueous solution. Dr. Hüfler recommends the compound, by way of hypodermic injections, in syphilis. The solution is diluted until one syringeful contains 0.04 Gm. of the preparation (reckoned as dry), equivalent to 0.01 Gm. of bichloride. If the solid compound is at hand, 4 Gm. of this are dissolved in distilled water, the solution filled up to 100 C.c., and, if necessary, filtered. The injections are administered either between the shoulder blades or in the lumbar region. About twenty injections are required to effect a cure.

Hydrargyrum thymolo-aceticum.—This salt has been known for several years. More recently several authorities have made very favorable reports about it. It is one of the insoluble mercurials used hypodermically, being held in suspension. Löwenthal's formula is:

Hydrargyri thymolo-acetatis	1.0 Gm.
Glycerini	10.0 "
Cocainæ Hydrochloratis	0.1 "

[Dissolve the cocaine salt in the glycerin, and thoroughly triturate with it the mercury salt. Shake well before using.]

Dose: 1 hypodermic syringeful once a week.

Hypnal, or Monochloral-antipyrin, consists of equal molecules of chloral and antipyrin, and forms odorless and tasteless crystals soluble in 5 to 6 parts of water. It is both an analgesic and a hypnotic. In doses of 1 to 2 Gm. it produces a quiet sleep without injurious effects. Bonnet recommends the following formula for its administration:

℞ Hypnal	10.0 Gm.
Aquæ destillatæ	65.0 "
Aq. Flor. Aurantii	5.0 "
Alcohol	40.0 "
Tinct. Aurantii	20.0 "
Syrupi	60.0 "
Tr. Croci	11 gtt.

Dose: 1 to 2 tablespoonfuls.

Zincum sulphydricum (Sulphydrate of zinc—$ZnS.H_2S$).—A white precipitate, which must be kept under water, since it easily decomposes when it is allowed to become dry. It has been used with success in eczema, psoriasis, and similar skin diseases. It is used both internally and externally—internally, in form of pills made with extract of gentian, the dose being about 2 grains daily; externally, in form of ointment, as follows:

Zinci Sulphydratis	10 parts.
Lanolini	40 "
Adipis	90 "

The Tests of Oil of Bitter Almonds.

SCHIMMEL & Co., in their semi-annual report on essential oils, published in April, 1890 (see this journal, 1890, page 108), gave a test for recognizing the presence of the artificial benzaldehyde, which is now declared by Merck to be entirely fallacious (*Jahresbericht*, dated January, 1891, page 39). Merck says:

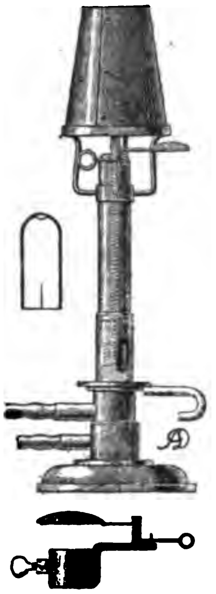
It is well known that there are often found in the market mixtures of oil of bitter almonds and benzaldehyde which are offered at a much lower price than pure oil of bitter almonds. Since the identity of both substances precludes the possibility of proving the presence of the adulterant directly, it has been recommended to demonstrate the presence of benzaldehyde by its alleged constant contamination with chlorinated bodies. This is accomplished by the exact and reliable method recommended by Hempe—decomposition of the oil by means of melted caustic alkali, and search for chlorides in the resulting mass. Schimmel & Co., however, have proposed the following test:

Saturate filtering paper with the suspected oil, set it on fire, and catch the products of combustion in an inverted beaker the walls of which have been moistened with water. Next rinse the beaker with a little water, filter the resulting liquid, and test the filtrate with chlorine.

Merck has no fault to find with this method, so far as the detection of chlorine is concerned, *if it is present;* but he finds fault with the assumption that an oil yielding no chlorine reaction must be pure.

Even on theoretical grounds—since a perfectly pure and chlorine-free benzaldehyde is certainly attainable in *some* way—the logic of the test is assailable. But Merck communicates the remarkable fact—derived from recent investigations—that even an *undoubtedly genuine oil of bitter almonds may occasionally contain chlorinated* compounds. Hence neither the presence nor absence of chlorine will hereafter afford any criterion for the judgment of this oil.

A NEW GAS BURNER.



A NEW "Bunsen" burner which permits graduation of the degree of heat obtained by it, has been devised by Franz Miller, of Bonn (according to the *Pharm. Zeitung*). The gas enters as usual through a lateral tube near the bottom (see cut), and finds its exit through four small openings in the usual manner inside of the tube. The access of air is regulated by a sleeve. When lower degrees of heat are to be obtained, a piece of wire gauze is slipped by means of a slide over the orifice of the tube. This causes a spreading of the flame, and the latter may be reduced to a very trifling amount without causing it to strike back. The wire gauze is fastened either directly to the tube of the burner or to the frame supporting the hood attached to the top of the burner.

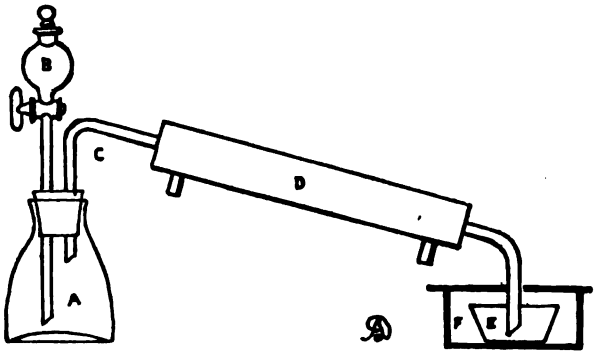
The burner may, of course, be used like a simple "Bunsen" by removing the hood and wire gauze. Or it may be used as a blowpipe by inserting into the burner tube a blowpipe jet, and admitting through the second nipple near the base a current of air under pressure.

DETECTION AND ESTIMATION OF BORACIC ACID IN MILK, CREAM, ETC.

THE presence of boracic acid and borates in milk and cream can be detected without difficulty by applying the turmeric test and the alcohol-flame test to the ash. The ash obtained in the course of the ordinary analysis is treated with a little water and made just acid with hydrochloric acid.

Numbered slips of turmeric paper are moistened halfway with the solution, and are preferably arranged on a glass plate and dried in the air bath; or a few drops of turmeric solution are added to the acidified ash, and evaporated to dryness in a porcelain capsule, the latter method being an exceedingly delicate one. On moistening with an alkali, the dark-blue color is obtained on the paper or porcelain when boracic acid is present. A dark-blue solution is obtained when water and an alkali are added to the residue in the porcelain capsule, but the color disappears with great rapidity, and I have hitherto been unsuccessful in determining the conditions which would render it permanent, or sufficiently permanent to admit of its being applied for purposes of estimation. The only method which up to the present I have found to be applicable for the estimation of boracic acid in milk and cream, is a modification of that described by F. A. Gooch in the *American Chemical Journal*, and which depends on the fact that free boracic acid can be completely separated from fixed substances by repeated distillation with methyl alcohol. I have repeated Mr. Gooch's experiments, and am able to confirm his results generally. He states that methyl alcohol, ethyl alcohol, and water are effective for the purpose of separation, in the order named, and this I have found to be the case; but the volatilization of even 0.2 Gm. of anhydrous boric acid by the use of ethyl alcohol is so tedious that it is not advisable to use this substance for the purpose. Complete volatilization of boric acid by the use of successive charges of methyl alcohol is easily and rapidly effected. I have found it best to use successive charges of 5 C.c. rather than 10 C.c. or more as used by Mr. Gooch. I am not able to confirm his statement that in the presence of water methyl alcohol is not equally effective. My own experiments show that crystallized boracic acid is volatilized more rapidly than anhydrous boric acid, and that the addition of a few drops of water to the latter before evaporation or distillation with methyl alcohol promotes rather than retards the volatilization of the acid.

The method as now applied by me for the estimation of the acid in milk and cream is as follows: In the case of cream about 50 Gm., and in that of milk about 100 Gm., of the sample are rendered alkaline with caustic soda, evaporated to dryness, and incinerated. The ash, which need not, of course, be burnt white, is ground up and transferred, washing in with a little methyl alcohol and a few drops of water, to a conical flask, A, of from 200 C.c. to 300 C.c. capacity, provided with a doubly-perforated caoutchouc cork through which pass a stopcock funnel tube, B, and a delivery tube, C. The flask is attached to an ordinary condenser, D, by means of a flexible joint in such a way as to admit of its being shaken round occasionally, and is placed in an oil bath. The mixture in the flask is acidified with acetic acid, and 5 C.c. of methyl alcohol are run in from the funnel tube and distilled. The distillate is received in a weighed amount of pure lime (ignited to constant weight). About 1 Gm. is a convenient quantity. The lime is contained in a platinum dish, E, capable of holding about 70 C.c., which is placed in a glass receiver, F. This receiver may be made from a ground-edged glass vessel, covered with a perforated ground-glass plate. The end of the condenser tube passes through a grooved or loosely fitting cork in the perforation of the plate, and terminates just above the lime in the platinum dish.



Cassal's Apparatus for Boric Acid Estimation,

Distillation with 5 C.c. of methyl alcohol is repeated several times, ten such treatments being ample for all likely cases. Fewer are generally quite sufficient. A gelatinous mixture is obtained in the platinum dish. It is well stirred, and allowed to stand for some minutes. It is then evaporated in an oil bath, and is finally heated over the blowpipe flame to constant weight. The increase of weight is boric acid, and the error does not in any case amount to more than 1 Mgm. plus when dealing with from 0.1 to 0.25 or 0.3 Gm. of anhydrous boric acid. To make sure that the acid has been completely volatilized, the residues in the distillation flasks are tested with turmeric paper. The few drops of water added before the first distillation greatly increase the rapidity of the removal of the boric acid.

The use of nitric acid is not advisable for the purpose of freeing the boric acid in the flask. Acetic acid presents no difficulties and is quite effective.—CHARLES E. CASSAL in the *Analyst*, 1890, 230.

◆

Salinaphthol is the name which has been given to a compound of salicylic acid and naphthol, similar in character to the compound salol, formed by the combination of salicylic and carbolic acids. It was supposed that the new compound would be better than salol in the same affections, but clinical results have not yet been favorable. The dose of the substance is 5 to 10 grains.—*Chem. and Drugg.*

ON THE DETERMINATION OF THE ALKALOIDS IN NARCOTIC EXTRACTS.

O. SCHWEISSINGER and G. SARNOW have published the results of their latest studies on the above-mentioned subject in the *Pharm. Centralhalle* (No. 52, 1890). The basis of their method of isolating the alkaloids is the well-known method by agitation with an "immiscible" solvent ("shake method"), which method is preferred by many to the so-called "extraction" method.

Schweissinger and Sarnow ascertained that the "shake method" may be much simplified by employing a *large* quantity of the respective menstruum, in which case a single agitation is sufficient to extract the alkaloid. On the other hand, it is necessary that the volume of aqueous solution containing the alkaloids be quite small, in which case only a minimum amount of the volatile solvent is retained by the water, thus removing a source of error.

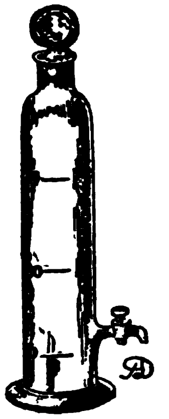
Among all volatile solvents, ether was found to be the least suitable for use in this method, principally because it is not a ready solvent for many alkaloids when employed cold. The authors, therefore, experimented with chloroform, and found that this, indeed, extracted the whole of the alkaloids at one operation, but that it had the drawback of readily forming emulsions which would not separate into layers of liquids. The sufficiency of chloroform alone, as solvent, however, is shown by analytical data quoted by the authors. The experiments were made in the following manner: 0.5 Gm. of an alkaloidal salt (sulphate of atropine) was dissolved in 100 C.c. of water, and portions of 10 C.c. of this solution were successively mixed with 1 C.c. of strong ammonia (20 per cent) and 40 C.c. of chloroform. The mixture was thoroughly shaken, then *half* of the chloroform separated, the chloroform removed by gentle heat, and the residue either dried or determined by means of $\frac{1}{100}$ volumetric acid, cochineal being used as indicator. We quote a few figures given by the authors:

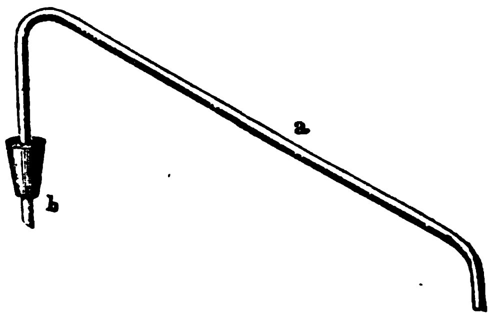
Atropine sulphate taken.	Half the chloroform solution should contain:	Found:	
0.042	0.021	0.022	By weighing.
0.021	0.0105	0.0105	
0.021	0.0105	0.0110	
0.021	0.0105	0.0108	
0.042	0.021	0.0207	By titration.
0.021	0.0105	0.0107	
0.021	0.0105	0.0108	
0.021	0.0105	0.0104	

However, the tendency of chloroform to form emulsions, as already mentioned, led the authors to look for the more suitable solvent. This they found in a mixture of *chloroform and ether* [this is, however, not new, as it has been already recommended and used by others, though perhaps not as a uniform and systematic solvent for the whole of the alkaloids encountered in narcotic extracts]. On shaking the aqueous solution of an alkaloid with this mixture, no emulsion results, and the whole alkaloid may be extracted in one operation. The mixture of chloroform and ether may be made in various proportions, so as to be either lighter or heavier than water. The choice between one or another depends somewhat upon the kind of separator which is used. In the case of an open funnel separator it is better to have the aqueous liquid above, so as to prevent evaporation of the volatile solvents. In the case of a stoppered separator the lighter mixture may be used, which will float on top.

It may be remembered that a mixture of equal volumes of ether and chloroform is heavier than the solution of the narcotic extract (see below); and a mixture of 25 C.c. of ether and 15 C.c. of chloroform is lighter. But 40 C.c. of either solvent are sufficient to extract the whole of the alkaloid from the quantity of extract directed to be taken, namely, 2 Gm. Even if this were to contain as much as 1 per cent of alkaloid, and 40 C.c. of the lighter mixture were taken, there would then still be present 750 parts of chloroform and 1,250 parts of ether to dissolve 1 part of the alkaloid.

The method of assaying an extract, for instance, of belladonna or hyoscyamus, is as follows: 2 Gm. of the extract are dissolved in 8 C.c. of water mixed with 2 C.c. of ammonia [20 per cent], and then 40 C.c. of a mixture of 15 parts of chloroform and 25 parts of ether added. The whole is then thoroughly agitated, and set aside so that the layers may separate. After half an hour 20 C.c. of the clear chloroform-ether layer are removed with a pipette, evaporated, and the residue weighed or determined by titration with $\frac{1}{10}$ volumetric acid. If a heavier solvent is used and the chloroform-ether layer lies at the bottom, 10 C.c. are drawn off into a carefully tared and graduated small flask. The whole operation may, with advantage, be carried out in a small stoppered shake cylinder (see cut) which has a stopcock near the bottom. This little cylinder has three graduation marks, the lowest at 10 C.c., marked 0; the next at 20, and the uppermost at 40. The stopcock (the interior capacity of which must have been taken into consideration when the graduations were made) is affixed at a height corresponding to about 15 C.c., which renders it possible to withdraw some of the chloroform-ether layer, no matter whether this is above or below.





When many experiments are to be made it will be advisable to recover the volatile menstrua. The simplest way—rendering a cooler unnecessary—is to bend a glass tube in the form shown in the cut. At one end is attached a good cork fitting into the Erlenmeyer flask from which the menstruum is to be distilled off. The descending arm of the glass tube (which must not be too narrow) is wrapped with several layers of moistened filterpaper, which is kept damp by occasionally applying some cold water to it. In this way the tube acts as an efficient condenser.

If there is no object to be gained by recovering the volatile solvent, it is preferable to receive the 20 C.c. of the final chloroform-ether solution in a small porcelain capsule, and dissipating the solvent rather rapidly by placing it upon the warm hand or a gently warmed water bath.

Should a few drops of the aqueous solution be accidentally withdrawn at the same time as the chloroform-ether solution, the latter must be transferred to a second capsule, and fresh solvent be used for rinsing. The drops of water will remain in the first capsule, if the operator is skilful.

If chloroform is dissipated by evaporation, no open flames should be burned in the room, since traces of hydrochloric acid are produced [as well as chlorocarbonic acid, which acts as an irritant to the nasal and bronchial membranes]. All vapors of acids or ammonia must be carefully guarded against, since the result—which is to be determined by a highly dilute ($\frac{1}{10}$) volumetric acid—would be liable to be affected thereby.

To *weigh* the extracted alkaloids has been found by the authors to lead to reliable results only in the case of working with pure alkaloids or alkaloidal salts. In the case of extracts it cannot be used, since the results will be too high, the volatile menstruum extracting more or less of other constituents besides the alkaloids.

A good burette for use in this assay is one of only 10 C.c., divided into one-tenths, so that the divisions are rather far apart, permitting the reading off of as little as 0.02 C.c.

When the chloroform-ether layer from the withdrawn 20 C.c. has been dissipated, the residue is dissolved in a *very little* alcohol; 5 or 6 drops of tincture of cochineal are then added, together with a little water, and the $\frac{1}{10}$ volumetric acid then carefully dropped in from the burette until the point of neutralization is reached. The volume of the liquid to be titrated must not be more than 2 or 3 C.c., otherwise the contrast of tints in the indicator is not brought out sharp enough.

Each cubic centimeter of a $\frac{1}{10}$ normal volumetric acid corresponds to

Atropine	0.00289 Gm.
Hyoscyamine	0.00289 "
Strychnine	0.00334 "
Nux Vomica Alkaloids (strychnine + brucine)	0.00364 "

The authors say that they have tried the method only a few times upon extract of nux vomica, but regard it as suitable for this purpose. In the case of tinctures, the method is very easily applied, it being only necessary to evaporate it to a smaller volume, say 20 C.c. to 10 C.c.

Further analytical data furnished by the authors show that the results are very satisfactory.

Improved Desiccators.

Walther Hempel points out that the usual forms of desiccators are inefficient. A desiccator is a vessel so arranged that a container, filter, or other substance enclosed therein may become dry through its moisture being absorbed by sulphuric acid or chloride of calcium. Or it is used to allow a heated vessel to cool without being liable to absorb moisture. The usual form is a glass cylinder, with a lower receptacle for the sulphuric acid or chloride of calcium, and a glass plate or cover ground so as to fit air-tight. Hempel points out that *moist air is lighter than dry air*. Consequently, if any substance containing moisture is placed into a desiccator so that it is *above* the drying medium, it remains surrounded by a layer of light and moist air which only very slowly yields up its moisture, since there is no chance of any currents being produced in the confined space. If, however, the moist substance is placed *below* the drying medium, the absorption of moisture takes place very rapidly.

The author states that he made two parallel experiments with two desiccators of equal form and size. In one of them a watch glass containing 10 C.c. of water was placed *over* a vessel containing sulphuric acid, and in the other a similar watch glass with 10 C.c. of water *under* the sulphuric acid. It took *nine* days for the water to disappear in the former, but only *three* days for that in the latter. He therefore proposes to apply this fact in practice, and to reverse the arrangement heretofore used.

The best construction, according to the author, is the following: Upon a ground-glass plate place a high iron tripod, upon which is put a dish containing sulphuric acid or chloride of calcium, and cover the whole with a bell glass. The vessel containing the substance to be dried is put on the ground-glass plate between the legs of the tripod. After the bell glass has been put over as cover, there begins an immediate attraction of moisture from the lower vessel to the upper one, and a downward current of dry air. This circulation continues until no more moisture can be taken up.

The energy and rapidity of this internal current may be demonstrated to the eye by attaching to the upper and outer surface of the bell glass a receptacle containing a freezing mixture. It will then be seen that the interior surface of the top becomes covered with snow.

When sulphuric acid is used as drying agent, the author recommends to place into the dish a number of pieces of glass, porcelain, or pumice (the latter must first be freed from chlorides by heating it with sulphuric acid), so that they will project in numerous places above and beyond the edges of the dish. This will materially hasten the absorption of moisture.—After *Berichte*, 23, 3566.

The Official Name is "Tuberculin."—Prof. Libbertz affixes the official name "tuberculin" to all vials of the Koch lymph given out at his laboratory.

New Alkaloid from Conium.

E. MERCK has discovered a new alkaloid in the seeds of *Conium maculatum* (circular published January, 1891). It is contained in the highest boiling portion of the crude coniine, from which it may be separated by fractional distillation in vacuo, and subsequent crystallization. This new base crystallizes in needles, is easily soluble in alcohol, ether, and chloroform, melts at about 98° C., and boils at 230°–233° C. As it has been found by Ladenburg to possess the same formula as conhydrine ($C_8H_{17}NO$), the latter proposes to call it pseudoconhydrine.

New Alkaloids from Sabadilla.

E. MERCK reports in his latest circular (issued at Darmstadt in January, 1891) that he has succeeded in extracting two new bases from sabadilla, for which he proposes the names sabadine and sabadinine.

These two alkaloids have been heretofore overlooked, probably on account of a remarkable property which they possess, namely, they remain in solution after being set free by caustic or carbonated alkalies or by ammonia, and separate in flakes only after the solution is warmed. They may be extracted from the aqueous solution by shaking with chloroform or ether.

Sabadine excites sneezing, but in a less degree than veratrine. Sabadinine has no effect upon the nasal passages.

Perfumes from Asafœtida.

F. W. SEMMLER has investigated the nature and composition of the essential oil of asafœtida, and has found that the crude oil (which he obtained from Schimmel & Co., of Leipzig) could be separated into four fractions by distillation in vacuo. The first fraction, obtained at a temperature up to 65° C., at a pressure of 9 Mm., when treated with metallic sodium in vacuo, as long as gas is given off, yields, on distillation, a colorless oil of *exceedingly* pleasant odor. This is a terpene of the composition $C_{10}H_{16}$. A similar oil, possessing a most pleasant lavender-like odor, was obtained from the fourth fraction, which boils in vacuo (at 9 Mm. pressure) between 133° and 145° C. The sulphuretted compounds which impart so disagreeable an odor to asafœtida are contained in the two middle fractions, boiling (at 9 Mm.) from 80° to 85° C. and from 120° to 130° C.—After *Berichte*, 23, 3530.

Piperazine or Spermine as a Nerve Stimulant and as a Solvent of Uric Acid.

W. MAJERT and A. SCHMIDT have recently published (*Berichte*, 23, 3718) the results of investigations made in the laboratory of E. Schering, of Berlin, regarding the new synthetic principle piperazine. The identity of this with Ladenburg's æthylenimine and Schreiner's spermine is now rendered certain. [More recent investigations render this doubtful.—ED. AM. DRUGG.] As the substance has already been put on the market and is likely to have a future of importance, its leading characteristics are here given.

Piperazine crystallizes from water in shining, apparently quadratic plates. It is easily sublimed, and melts, according to the above-named authors, between 104° and 107° C. It absorbs carbonic acid with avidity. A dilute aqueous solution of the substance may be distilled for days without driving over the whole of the base; but on raising the boiling point of the solution (by the addition of sodium chloride, or, better, sodium hydrate), the base may easily be distilled over, and in such a concentrated state that it congeals in the condenser.

The hydrochlorate appears to be a suitable salt for practical use; its composition is $C_4N_2H_{10}.2HCl.H_2O$.

The base itself is neither caustic nor possessed of toxic properties. Physiological experiments—which are, however, not quite concluded—show that it exerts a stimulating ("vivifying") effect upon the nervous system of man.

Piperazine is remarkable also on account of its great solvent power over uric acid, even when the latter is present in excess. Curiously enough, though, it always forms with it only the neutral urate of piperazine, having the composition $C_4N_2H_{10}.C_5N_4H_4O_3$. One part of urate of piperazine dissolves in about 50 parts of water at 15° C. And not only is piperazine the best solvent for uric acid so far known, but it has the further advantage that it dissolves it in the cold.

Heretofore the lithium salts have been relied upon as solvents of uric acid; but when lithium carbonate is introduced into the economy there is always formed only the acid urate, which requires 368 parts of water for solution.

It is quite likely that piperazine will play a rôle in the treatment of lithiasis.

In a paper immediately following the foregoing in the original, Prof. A. W. v. Hofmann announces that the supposed "æthylenimine" (or, English, ethene-imine) is nothing else than di-ethene-diamine—

$$C_2H_4\left\{\begin{matrix}NH\\NH\end{matrix}\right\}C_2H_4$$

which has been known a long time, and can be readily prepared from ethene chloride ("Dutch liquid") and alcoholic ammonia. Prof. Hofmann does not approve the new names bestowed on the compound, and proposes that it be called by its old name—Diæthylendiamin in German, which is equivalent to diethenediamine in English.

Reactions for Cocaine.

A SMALL quantity of cocaine, or one of its salts, or of the residue obtained by evaporating a solution, is mixed with a few drops of fuming nitric acid of sp. gr. 1.400, evaporated to dryness on the water bath, and the residue mixed with 2 or 3 drops of concentrated alcoholic potash. A distinct and peculiar odor, recalling that of peppermint, is developed. In Dragendorff's systematic scheme of analysis, cocaine is found among the alkaloids extracted by benzene from an aqueous ammoniacal solution. Of the other alkaloids of the same group, atropine, hyoscyamine, strychnine, codeine, and eserine give colorations when treated in the same way, and eserine also develops a disagreeable odor resembling that of phenylcarbylamine. Delphinine, brucine, and veratrine give only indistinct odors which cannot be confounded with that from cocaine. Sabadilline and narcotine can be recognized in the same way, but the other alkaloids give no sensitive reactions of this order.

The reaction will detect 0.5 Mgm. of cocaine hydrochloride.—F. DA SILVA in *C. Rend.* and *Journ. Chem. Soc.*

PHARMACIST SCHELL, of Mulhouse, has called attention to a new reaction which he has observed. When a minute quantity of cocaine hydrochlorate is rubbed with an equally small proportion of calomel, by means of a dry glass rod, on a dry porcelain surface, the mixture will immediately turn black when the operator merely breathes upon it. The same change of color may be obtained by using a glass rod dipped in water, most of the liquid being briskly shaken off. It is necessary that the amount of moisture be small, as a whole drop of water is sufficient to prevent the reaction. Taken in all, the breathing process is preferable. No other alkaloid will give the same reaction under similar conditions; pure atropine alone will blacken calomel when boiled with it in water. It should be remarked that atropine salts will not affect calomel, while the reverse happens with cocaine, the reaction being afforded by the salts alone and not by the pure alkaloid. Prof. Flückiger some time since mentioned several points of resemblance between atropine and cocaine.—Paris Correspondent of *Chem. and Drugg.*

Editor of Agricultural Paper—Look here, here's a man who asks the silliest questions!

Assistant—How about it?

Editor—Why, he asks me the best way to cure hams, and doesn't state in his note what's the matter with them. —*Lawrence American.*

Usego Paper.

THIS is a Japanese paper, prepared from the liber of the Japanese plant *Wickstrœmia canescens*, nat. fam. THYMELACEÆ. This paper is exceedingly light, thin, and pliable, but at the same time very tough and resisting.

Dr. A. Hoffmann has recommended it in place of wafers or capsules for administering medicines which are to be taken in form of powder. For this purpose the sheets are cut into pieces about 6 Cm. (2⅜ inches) square, the medicine is placed in the centre of a square, the corners taken up with the thumb and index finger of each hand, and the package then twisted together, the tails being cut off with the scissors.

The little ball is then laid on the tongue and washed down with water.

We have seen and examined this paper, which has been put on the market by Merck. It is certainly a marvel of paper-making.

The Antiseptic Properties of Sodium Fluoride.

O. HEWELKE has made experiments to test the antiseptic power of sodium fluoride by studying its effects upon the ferment and the alkaline fermentation of urine. He used alkaline sodium fluoride. *Torula Cerevisiæ* did not grow in the presence of 1 part of sodium fluoride in 100 to 300 parts of urine; in presence of 1 in 600 to 3,000 the fermentation was distinctly checked, and this was noticeable, although in a minor degree, when the proportion of sodium fluoride was reduced to 1:4,000. In the case of urine without any sodium fluoride, the fermentation commenced at the end of three to five days; the addition of 1 part to 2,000 of urine prevented fermentation until the fourteenth or fifteenth day, 1:600 till the sixtieth day, 1:100 over a month. Blood, with the addition of 1 part of sodium fluoride to 80–160, remained good for a long period, and a disagreeable odor was first developed at the end of several weeks.

In nutrient substances containing 1 part of sodium fluoride to 150 to 200, neither pathogenic nor non-pathogenic organisms developed; and even when the proportion of the salt was reduced to 1:600, evidences of a checked growth were observable. Some organizations proved more susceptible than others; for instance, 1:300 prevented the growth of the bacillus anthracis. In general, the pathogenic organisms proved the most susceptible.—*Chem. Centralbl.* and *Journ. Chem. Soc.*

Colors for Foods.

IN accordance with the Council of Hygiene's advice, the Prefect of Police of Paris has issued new regulations somewhat modifying those hitherto enforced respecting the use of coloring matters for articles of food. The following pigments are prohibited in all articles of food: Copper, lead, arsenic, and mercurial compounds of all kinds; also barium chromate, yellow ultramarine, gamboge, and alkanet. The following may not be used in ordinary articles of food: Coal-tar colors, such as fuchsin, Lyons blue, flavaniline, methylene blue, phthalein, and their derivatives; eosine, erythrosine, naphthol yellow, Victoria yellow, diazoic compounds, tropæolines, scylidines. But for coloring candies, liqueurs, ices, etc., the following may be tolerated in very small proportions:

PINKS: eosine, erythrosine, Bengal rose, phloxin, Bordeaux red, ponceau, and fuchsin, prepared without arsenic (Coupier's process).

YELLOWS: sulpho-conjugated derivatives of naphthol.

BLUES: Lyons blue, light blue, Coupier's blue, all triphenyl rosaniline, or diphenylamide derivatives.

GREENS: all mixtures of the yellows and blues given above; also malachite green (hydrochloric ether of tetramethyldiamidotriphenylcarbinol).

PURPLES: Paris violet or methylaniline. No pigments of the first group may be used for coloring any boxes, wrappers, or cases which are to come in contact with articles of food.

Tinfoil used for wrapping articles of food may not contain more than one-half of 1 per cent of lead, or more than 1 per 10,000 of arsenic.

The metal used for tinning copper and other utensils must be of similar purity. Pewter implements, such as pots or measures, employed in connection with food articles, may not contain more than 10 per cent of lead and 1 per 10,000 of arsenic.—French Corresp. of *Chem. and Drugg.*

Carbolate of Camphor.

THE following is taken from a paper on this subject by Dr. M. B. Cochran, of Iowa City, in the *Therap. Gazette* (1891, 92):

In the December number of the *Gazette* for 1887 I called attention to a mixture of Japan or laurel camphor and crystals of carbolic acid, under the above name, and gave some account of the therapeutic uses to which I had applied it. Dr. Th. Schaefer called attention to this preparation in 1885 under the name of "phenol-camphor," and used it as a local anæsthetic in odontalgia, introducing it, on cotton, in the cavity of a carious tooth; also as an anæsthetic in ingrowing toe-nails. He also used it in certain cutaneous eruptions due to cryptogamic causes.

The above is the only notice of it, so far as I am aware, until my article appeared in 1887, and at that time I had not seen the article of Dr. Schaefer. Since that time, however, I have seen various notices of it in different medical journals, and accounts given of the uses to which it has been applied.

I prepare it by adding 1 part, by weight, of carbolic acid to 3 parts of camphor, setting it aside for twenty-four hours, and straining through gauze. It is a permanent liquid, having a specific gravity of 0.990. It is thoroughly antiseptic and possesses unsurpassed germicidal powers. I dipped a piece of fresh meat (beef muscle), a square weighing about 2 ounces, in the carbolate, and then placed it in a bottle, closing the mouth with cotton; then placing the bottle in an east window, so that it was exposed to the sun's rays from the 1st of June until August, or until it was dry. No odor or indication of putrefaction was at any time perceptible. I impregnated gauze and cotton with it, and used it as a dressing for wounds after operations. It prevented suppuration in every instance when it could be well applied; but I found that, if applied to the skin for several days without dilution, it gave rise to an eruption of the surface, and that it was necessary to mix it with oil for continued external use.

I have injected it with a hypodermic syringe into acute abscesses or boils, with the effect of aborting them if suppuration had not begun, and of relieving the pain of them in every instance. When a few drops are injected under the skin, it produces complete anæsthesia in the immediate parts which lasts for several hours. Some soreness of the surrounding parts follows, but no abscess. A sharp smarting is felt at first, which only lasts a moment. A little ether or alcohol (pure) should be added to it for hypodermic use, so that it will readily flow through the needle. It combines readily with alcohol, ether, fixed and essential oils, and petroleum derivatives, but not with aqueous solutions or glycerin.

It readily dissolves menthol, cocaine, salicylic acid, iodoform, chloral hydrate, and mercuric chloride. When given internally in capsules, in doses of from 5 to 10 drops, it produces a sensation of warmth of the stomach not disagreeable, and gives rise to camphoric eructations which continue from one to three hours. When applied to inflamed or ulcerated mucous surfaces, such as the tonsils, pharynx, or cervix uteri, it causes smarting for a moment, and then relieves existing pain and acts as an antiseptic stimulant.

When rubbed upon the skin, it produces an agreeable warmth of the surface that continues for a considerable time.

When mixed with an equal quantity of cottonseed oil, it forms one of the most agreeable antiseptic dressings to incised, lacerated, or contused wounds that I have ever used, preventing suppuration always.

When properly applied upon gauze or absorbent cotton, and kept in contact with the wounded tissues, and when suppuration has set in, it changes the character of the discharges completely, destroying all fœtor if well applied, and relieving pain and soreness sooner than anything that I have ever used.

Campho-Phenique

is a somewhat popular disinfectant in the United States. According to Dr. J. Robinson (in *New Idea*) it was made by him long before the article was patented, his formula being:

Purified Carbolic Acid	1 oz.
Camphor	1 "

Mix and make solution.

Tinctura Hæmostyptica.

Heinrich Fritsch, of Breslau, has recently communicated the following formula, which he says yields a reliable preparation for internal use:

Ergot, powdered	10 parts
Alcohol	20 "
Sulphuric Acid	2 "
Water	q.s.
Syrup of Cinnamon (Germ. Ph.)	30 "
To make	232 "

Mix the acid and water, and heat to boiling. Infuse the ergot in this liquid for two hours; then evaporate to 182 parts, and add the alcohol and syrup of cinnamon.

The dose of this is 1 fluidounce three times a day.

[We see no object in first making a dilute solution and then evaporating it. Probably the same product is obtained by infusing the ergot with 2 parts of sulphuric acid mixed with enough water to obtain at once 182 parts of infusion.—Ed. Am. Drugg.]

On Extract of Belladonna.

In a paper recently read before the Chemists' Assistants' Association at Edinburgh, Mr. W. B. Cowie reported on the alkaloidal strength of extract of belladonna as follows:

I estimated six commercial samples of the alcoholic extract. The process I adopted was to dissolve a definite weight of extract in acidulated water, remove coloring matter, etc., by shaking up with chloroform, making alkaline with ammonium carbonate, and then washing out the alkaloid with chloroform, transferring the chloroformic solution to a tared beaker, evaporating the chloroform, and weighing. The results were as follows:

No. 1, 3.27 per cent total alkaloid.
No. 2, 4.0 per cent total alkaloid.
No. 3, 3.6 per cent total alkaloid.
No. 4, 3.2 per cent total alkaloid.
No. 5, 1.6 per cent total alkaloid.
No. 6, 3.7 per cent total alkaloid.

No. 2 gives a fair representation of what the extract ought to be. Nos. 1, 3, 4, and 6 are too low, while No. 5 is hopelessly deficient. Dunstan and Ransom, in a paper in the *Pharmaceutical Journal*, give the percentage of alkaloid in nine samples of alcoholic extract of belladonna. Only two of them are the same. Their average is 2.87 per cent, which is extremely low, and the difference between the minimum and maximum is 2.8 per cent. Some of my results correspond with theirs, but my average percentage is rather higher.—After *Pharm. Journ.*

The Outlook for Medicinal and Other Crops in Europe.

This has been a very hard winter throughout Central Europe, and its effects will be felt for years. In an editorial in the issue of January 24th, the *Chemist and Druggist* says:

The Baltic ports are all ice-bound, and in Western Germany the Rhine, which has not been frozen since 1856, and the Moselle are thickly covered with ice. Under these circumstances trade with Central Europe is practically suspended, and orders are kept back wherever possible. Germany contributes to our materia medica comparatively few articles of first-class importance, and none the prospective supply of which is likely to be seriously affected by the recent severe weather. From Southern France, on the other hand, we not only draw annually thousands of pounds' worth of essential oils and extracts, but any severe injury to the olive-oil crop of the South (though Provence oil is not comparable in commercial importance to the oils of Italy) is not unlikely to react, to some extent, upon the value of the Italian product. So far as materials for perfumery are concerned, no accurate information of the damage, if any, caused to the prospective crop has yet reached us; but it is almost impossible to suppose that a winter which freezes the water in Marseilles docks, covers Monte Carlo and Cannes with snow, causes the mercury at Bordeaux and Toulouse to sink to 12° F., and jeopardizes invalid lives at Biarritz by rendering that health resort temporarily many degrees colder than Stornoway, should pass without working serious injury on the orange trees and the delicate herbs and flowers of the Riviera. That the agricultural districts of Italy have suffered serious damage is now beyond doubt. From Rome to Naples the surface of the country is reported to be covered with a sheet of frozen snow. The Sicilian mountains are covered deep in white, and from Calabria comes the same story. The gathering of the olives had been effected before the cold wave set in, but the weather, it is said, has had a serious effect upon the pressing of the oil. Essential oils are also advancing in price, and the Sicilian dealers affect to believe that before long they shall be able to realize three times as much money for their oil of lemon as they obtained one or two seasons ago. High lemon prices react upon the quotations for concentrated juice, and through these upon citric acid. It was well known that the lemon crop had suffered long before and quite independently of the climatic disturbances that have visited Italy; but such gales as are reported to have visited the Palermo and Messina districts a few days ago may be trusted to leave their mark upon all that grows. In Spain and Africa things are, if possible, even worse than in Italy. That snowstorms should howl through Madrid and Catalonia be frozen is not surprising, for certain portions of Northern and Central Spain are notoriously subject to severe climatic depressions; but when the cold drives jackals and wolves into the streets of Malaga and Valencia, and six degrees of frost are registered on the rock of Gibraltar, the semi-tropical products of the Peninsula are not likely to escape injury. And the thought that from Algiers, the last refuge (until Koch) of pulmonary sufferers, the snow extends landward until it almost fringes the sands of the Sahara, should suffice to make the hero of Tarascon turn in his island grave.

Adulterated Spirit of Turpentine.

We are indebted to Mr. Samuel J. Hinsdale, of Fayetteville, N. C., for the following information regarding a convenient method for detecting and for estimating petroleum in spirit of turpentine:

Put 10 drops of the spirit to be examined in a (moderately concave) watch glass, and float the glass on water which has a temperature of about 170° F. If the spirit is pure, it will evaporate and leave the glass quite dry in seven minutes. If the spirit contains even 5 per cent of petroleum, it will not have completely evaporated in that time. This experiment will prove the absence or presence of petroleum in the sample.

To estimate the *percentage* of petroleum adulteration, weigh the watch glass, and put into it 10 drops of the mixture and weigh again; then place it on water (at about 170° F.), and allow it to remain fifteen minutes, then take it off and weigh again. The difference between the weight of the watch glass and the third weighing will indicate the amount of petroleum in the sample; and, knowing the weight of the 10 drops, the percentage can be calculated. *About one quart of water at 170° F. should be used*, that the temperature may not fall much till the experiment is completed. A loop of wire is convenient to place the watch glass on and to remove it from the water.

The hydrometer will detect adulteration with benzin or petroleum, but it cannot be used to estimate the amount of adulteration.

The specific gravity of pure spirit of turpentine is about 0.865, and petroleum is the usual adulterant.

Estimation of Iron in Presence of Glycerin.

About six years ago, when working on Blaud's pills, I noticed that, when massed with glycerin, they invariably gave a very high reading for ferrous carbonate. I was reminded of this the other day when estimating some ferri carb. sacch., the ferrous carbonate for which had been precipitated in presence of glycerin. I found the yield of $FeCO_3$ to be almost 100 per cent. The reducing action of the glycerin being suspected, a 2-per cent solution of ferrous sulphate was prepared, and also a second solution of the same strength to which 2 per cent of glycerin was added. The first solution, on estimation, indicated 1.989, or practically 2 per cent, while the second, containing glycerin, indicated 2.61 per cent of ferrous sulphate.

The experiment was repeated several times with concordant results, thus proving that the presence of the glycerin gave rise to an error amounting to 33 per cent in excess of ferrous sulphate actually present. It is evident, therefore, that glycerin is quite as liable to lead one astray as sugar in estimating a ferrous salt, and, where accuracy is required, it must either be got rid of before the estimation is proceeded with or be allowed for in calculating the results.—Wm. Duncan, *Pharm. Journ.*, Jan. 3d.

Ost's Copper Solution for Estimating Sugar.

The solution of potassium copper carbonate, the preparation of which has been previously described (this journal, 1890, p. 152; see below), has the following advantages over Fehling's solution : It is very much more stable ; it is much less reduced by cane sugar ; slight departures from a particular mode of working cause less variation in the result, and consequently it is more easily managed ; the amount of copper reduced by a given weight of sugar is from $1\frac{1}{2}$ to 2 times as great ; the different glucoses each reduce a different amount of copper ; in using the solution volumetrically, the completeness of the reaction is sharply marked by the solution becoming completely colorless, and consequently no indicator is necessary.

In performing a gravimetric analysis, 50 C.c. of the copper solution containing 298.7 Mgm. of copper are heated to boiling for ten minutes with 25 C.c. of the sugar solution. In a volumetric estimation, 50 C.c. of the copper solution are heated with the amount of sugar solution needed to just decolorize the solution after ten minutes' boiling. The volume of the mixed solutions should be about 75 C.c.

Determinations have been made gravimetrically with the different glucoses. The following table contains a condensed synopsis of the results :

Copper. Mgm.	Invert Sugar. Mgm.	Dextrose. Mgm.	Levulose. Mgm.	Galactose. Mgm.	Arabinose. Mgm.
50	15.3	15.6	14.7	17.4	17.0
75	22.3	22.9	21.7	25.9	25.1
100	29.5	30.3	28.5	34.5	33.1
125	36.8	37.8	35.4	43.1	41.1
150	44.0	45.3	42.5	51.8	49.3
175	51.5	52.9	49.5	60.8	57.5
200	59.1	60.8	57.0	70.3	66.2
225	67.5	69.2	65.2	80.3	75.4
250	76.7	78.4	74.4	91.2	85.5
275	87.1	89.9	85.9	103.3	97.1
298.7	100.0	102.5	99.0	117.0	109.5

The numbers in the last horizontal line show the amount of sugar required to completely precipitate 50 C.c. of the copper solution, *i.e.*, the volumetric factors.

Lactose does not give such concordant numbers as the above glucoses; 198 Mgm. of lactose (hydrated) completely reduce 50 C.c. of copper solution—that is, reduce 298.7 Mgm. of copper—and 150 Mgm. of lactose reduce 231.2 Mgm. of copper.

The test solution is prepared in the following manner:

Copper Sulphate, cryst.	23.5 Gm.
Potassium Carbonate	250.0 "
" Bicarbonate	100.0 "
Distilled Water	to make 1 liter.

Dissolve the potassium salts in about 850 C.c. of the water, and the copper salt in 100 C.c. Gradually add the latter to the former, and make up the volume with distilled water to 1 liter.

The amount of sugar present in the liquid to be tested should be about 1 per cent. The liquid should, therefore, be suitably diluted to that strength.

Estimation of Corrosive Sublimate in Dressings.

Various methods, some quite complicated, have been proposed for this purpose. The most simple is that of M. Freund, who extracts the mercuric chloride with ether, converts it into calomel, and weighs. He recommends to take 50 Gm. of the sublimate dressing, to completely extract it with ether in a suitable apparatus (a Soxhlet extractor is best), to evaporate the ethereal solution, to dissolve the residue in boiling water, and then to reduce the mercuric salt by Rose's method. This is done by adding hydrochloric acid and an excess of phosphorous acid (produced by allowing phosphorus to become oxidized in a moist atmosphere), setting aside for twelve hours in the cold or at only a gentle heat (not over 50° C.), then filtering off the calomel, washing, and drying.

It appears, however, that the ether to be used as extracting menstruum must be entirely free from vinyl alcohol—which was not long ago shown to be a very common and persistent concomitant of commercial as well as many brands of purified ether. At least this is stated on the authority of W. Lenz, who abstracted Freund's paper for the *Zeitsch. f. Anal. Chemie.* Mr. Lenz, in fact, says that the ether employed must give no reaction whatever with mercuric chloride.

Another reliable method, involving the reduction of the mercuric salt, and the subsequent estimation of the produced mercurous salt (calomel) by reoxidizing the latter with a volumetric solution of iodine, is that proposed by Beckurts. It is as follows: Twenty Gm. of the sublimate dressing (gauze, cotton, etc.) are cut up small and placed into a liter flask together with 0.5 Gm. of chloride of sodium and 250 C.c. of warm water. After all air bubbles have been carefully expelled the volume of liquid is made up to 1,000 C.c. After the mixture has been thoroughly agitated, 500 C.c. of it, corresponding to 10 Gm. of the dressing, are filtered off. [If great accuracy is required, only 493 C.c. should be filtered off. The 20 Gm. of dressing (assumed to be cotton, which has a spec. grav. of 1.400) mixed with the water may be reckoned to take the place of 14 Gm. of the latter; hence 10 Gm. of dressing are equivalent to 7 Gm. of water.] The filtrate is received in a flask, mixed with a solution of 0.2 Gm. of ferrous sulphate, then with solution of soda to alkaline reaction, and afterwards with dilute sulphuric acid to acid reaction. This causes a reduction of the corrosive sublimate to calomel, the separation of which renders the liquid turbid. Next, a sufficient quantity of $\frac{1}{100}$ normal volumetric solution of iodine is added to have it slightly in excess, and the latter then determined by titration with $\frac{1}{100}$ normal hyposulphite solution.

The number of $\frac{1}{100}$ iodine solution actually required to convert the mercurous into mercuric chloride, when multiplied with 0.00271, will give the amount of sublimate in 10 Gm. of the dressing.

Improved Assay of Cantharides.

The following process of assay is offered as being suitable for pharmacopœial purposes :

Moisten 10 Gm. of the drug in moderately fine powder, with sufficient solution (10 per cent) of sodium hydrate to render the mixture strongly alkaline, and digest six hours in a warm (130° F.) place until the mass becomes somewhat brittle ; add dilute hydrochloric acid until a decided acid reaction is obtained ; again dry at a low temperature (130° F.) and pulverize; transfer to a modified Soxhlet extractor, and exhaust the powder with hot chloroform by repercolation (50 C.c. $CHCl_3$ are sufficient).

After three or four hours of percolation, evaporate or recover the chloroform by distillation from the flask, add CS_2, transfer the contents to a filter, and continue to wash with CS_2 as long as it takes up soluble matter. Allow the filter to dry spontaneously, treat with hot chloroform, collect the filtrate and pass through a small quantity of purified charcoal, thoroughly washing with $CHCl_3$, and evaporate the chloroform solution in a tared capsule; dry the residue (crystals) in a warm place or over H_2SO_4 (cantharidin being volatile at 212° F.) to a constant weight, and weigh as cantharidin. Yield, 1 per cent on an average.—J. B. **Nagelvoort** in *Amer. J. Pharm.*

Determinations of Alkaloids and their Molecular Weights.

For determining ammonia, Kjeldahl has recommended a method of titrating the acid iodometrically. The author has applied this process with advantage for estimating alkaloids. He proceeds as follows: A weighed quantity of the alkaloid is dissolved in an excess of decinormal sulphuric acid and dilute alcohol, made up with water to 50 C.c., and 50 C.c. of alcohol added. An excess of potassium iodide and iodate is added, which causes any excess of acid to react on these salts, setting iodine free. This is then titrated back with thiosulphate (hyposulphite) until the yellow color of the solution disappears. If A C.c. decinormal sulphuric acid were used, and B C.c. decinormal thiosulphate solution, the molecular weight of the alkaloid being V, the quantity of the latter is $\frac{V\ (A-B)}{10{,}000}$, or, the quantity of the alkaloid being found to be p, its molecular weight $\frac{p\ 10{,}000}{(A-B)}$.

Almost all alkaloids can be determined according to this method, the only exceptions being pilocarpine, narcotine, theobromine, and caffeine, which is due to the ready dissociation of their sulphates. In the case of pilocarpine this may be prevented by titrating in aqueous solution; or, in the case of narcotine, the solutions should be thoroughly cooled.

Details of the carrying out of this process are given for the quinine, opium, and strychnine alkaloids, as well as for using it in the case of mixtures of different alkaloids. —A. **Christensen** in *Chem. Zeit.*

Test for Detecting Sesame Oil in Olive Oil.

At a recent meeting of the Pharmaceutical Society at Edinburgh, Mr. J. C. Tocher presented the following paper on the above subject:

I had occasion a short time ago to examine some oils, and while so engaged I failed to find a published reliable test for the detection of sesame oil in smaller quantities than 10 to 25 per cent. The U. S. Ph. test is not reliable below 20 per cent, and serves principally as a distinctive test between sesame and olive oils [The author is mistaken in this. The U. S. Ph. does not mention sesame oil in connection with the tests for olive oil. It only appends the note, "Absence of appreciable quantities of other fixed oils of similar physical properties." And in the United States there is much more danger of an adulteration with cottonseed oil than with any other fixed oil.—Ed. Am. Drugg.] Considering the liability of olive oil being readily adulterated with sesame oil, I applied myself to the task of obtaining a more satisfactory test for the latter. I have been successful in finding one which, although it cannot rank with the silver test for cottonseed oil, still enables one to detect with rapidity and ease 5 per cent of adulteration, while 1 per cent can be detected by exercising a little care in the manipulation. I found that the acetic acid extract from sesame oil, which I was examining for another purpose, turned blue or bluish-purple when boiled with hydrochloric acid in which a few grains of pyrogallol had been dissolved. The same experiment was tried with sesame oil itself, using equal parts of the pyrogallol solution with the oil, with the result that the pyrogallol solution turned purple. I treated olive oil in a similar manner, and found it to give only a faint yellow coloration. Almond, rape, and groundnut oils gave no color, while sunflower oil turned the solution a very faint blue, and cottonseed oil imparted a very light red. It now occurred to me that this behavior of sesame oil with HCl solution of pyrogallol might be utilized for its detection in olive oil. Accordingly, solutions of sesame oil in olive oil of various percentages were prepared and the test applied. The following are the results obtained upon treating olive, sesame, and other oils with hydrochloric acid solution of pyrogallol and boiling:

Pure Olive—Faint yellow.
Sesame—Deep purple.
20 p. c. Sesame—Purple.
10 p. c. Sesame—Purple.
5 p. c. Sesame—Faint purple.
1 p. c. Sesame—Very faint purple.

Almond—Colorless.
Groundnut—Colorless.
Cottonseed—Very faint red.
Sunflower—Faint olive.
Rape—Colorless.
Oleic Acid—Faint red.

I obtained the best results by applying the test as follows, viz.: Prepare a solution of pyrogallol in pure hydrochloric acid (ʒ ss. to ℥ i.). Measure half an ounce of this solution into a wide-mouthed test tube provided with a cork, and add half an ounce (an ounce if the proportion of sesame oil be small) of the oil to be tested. Shake vigorously, and then set aside for about a minute to allow the oil and acid to separate. Draw off the supernatant liquid by means of a pipette, and boil the hydrochloric acid solution for about five minutes, when, if sesame oil was present, the color of the solution will have changed to purple. The color does not appear at once, but develops on boiling for a short time. When viewed by transmitted light the color is wine-red to purple, and by reflected light it is blue, which is best observed by pouring the solution into a small porcelain basin. When the purple solution is allowed to stand for some time a small purple deposit takes place. It has not yet been examined, but it has the appearance of a dye. It would be interesting to determine what this substance is, because the pyrogallol reaction with sesame oil points probably to the presence of a peculiar constituent in the oil.—After *Pharm. Journ.*

Detection of Paraffin in Beeswax.

A few grammes of the substance in fine air-dried shavings are gradually heated in a small porcelain capsule until fumes begin to rise. A half-liter wide-mouthed bottle is then inverted upon the capsule, and when filled with white vapors is closed and set aside until the fumes have condensed upon its walls. The sublimate is then dissolved in 3 C.c. of chloroform, the chloroform evaporated in a test tube, and the residue boiled with 4 C.c. of soda solution. If paraffin was present, it will, after cooling, be found floating on the clear solution. A drop of the chloroform solution may also be evaporated on a slip of glass and examined microscopically.

The fumes from pure beeswax are not so white as from paraffin, and are only obtained at a higher temperature (300°-320°). The sublimate gives a colored solution with chloroform, and a colored and turbid solution with soda. The residue from the chloroform solution is a dull film; paraffin, on the contrary, gives separate grains in a clear field.—H. **Hager** in *Pharm. Centralh.*

The Reddening of Carbolic Acid.

E. **Fabini** ascribes the reddening of carbolic acid to the action of copper, which he believes to be present in the carbolic acid, even where the original crude material did not contain any. The body is of the nature of a copper derivative of phenol. Fabini calls it diphenyl-copper, $C_6H_5.Cu_2.C_6H_5$. According to the writer, the addition of sulphate of copper to carbolic acid, dissolved in ammonia, forms this body, which, even in a proportion of 1 to 300,000, is capable of imparting a plainly perceptible reddish color to previously colorless carbolic acid. Fabini's substance is a black, light resinoid body, colorless and tasteless, and reducible to an amorphous powder by rubbing. When heated it evaporates with a yellowish vapor. It sublimes with a peculiar rancid-aromatic odor, forming a rose-colored solid deposit, which under the microscope appears in the shape of tears, and with concentrated sulphuric acid gives the characteristic blue coloration. Under increased heat the body melts, evolving a vapor which, when ignited, burns with a brilliant flame, but in the ashes of which no copper could be traced. The presence of the substance in carbolic acid is easily proved —even although the acid be not red—by adding to the acid a few drops of ammonia, followed by the same quantity of hydrogen peroxide solution, when an intense carmine-red color is produced in the course of a few hours or on gently warming.—*Chem. and Drugg.*, after *Pharm. Post.*

American Druggist

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EDITORIAL.

IN considering the subject of the standardization of galenical preparations one may very naturally wonder whether, in view of the extremely complex structure of many of the vegetable substances employed as therapeutic agents, the trouble and labor involved in devising and executing a process which will insure for each preparation the possession of a standard percentage of each active principle it may naturally yield, are justified by the advantages which are to be derived.

To illustrate one aspect of this question: A pint of the tincture of nux vomica can be bought for, say, 60 cents, and it has about a grain of the alkaloids in each ounce. Of these about a half (according to Dragendorff) may be strychnine. There is no satisfactory evidence that the remainder have any recognizable therapeutic value, so that we get, in the pint, about 8 grains of the real medicinal agent, and this can be bought for a little more than a quarter of a dollar.

At best the tincture of nux vomica is of very unreliable strength; and, for anything that we know to the contrary, a tincture which may be able to answer all the requirements of the most exacting standardist when it is first made, may undergo subsequent changes which may either increase or diminish its alkaloidal strength, and any possible advantage to be derived from its standardization will then be rendered unavailable without another assay. Sulphate of strychnine is not apt to deteriorate in the same way.

Now, coming to the use of the drug as a medicine, all that we know of its effects relates practically to the action of this one alkaloid, and preparations of nux vomica are used for the sake of the strychnine which they contain. If, then, it is desirable that we should be able to know, with any degree of certainty, how much strychnine is being taken, why is it not better for this reason, as well as for the sake of economy, to use the alkaloid or one of its salts of definite chemical composition, rather than go through all the rigmarole of standardizing a tincture which is no better, if as good, after it has been prepared, than a solution, or tablet triturate, or abstract, or some other convenient preparation containing a known quantity of the alkaloid itself? It really seems to us that in this matter pharmaceutical chemists run the risk of repeating the experience of the mountain which was in labor and brought forth only—*a mouse;* and that by the time they have discovered the ways and means for standardizing their galenical preparations, the doctors will have ceased to prescribe them and will have come to the belief that it is better and more economical to use the active principles, which can be measured, weighed, studied, and administered as articles of definite composition and properties, than resort to preparations of complex character, uncertain composition, and with liability to change under the various conditions attending their preservation.

It appears to us that, with their superior knowledge of pharmacology, pharmacists are not doing themselves credit in failing to advocate the greater use of preparations containing alkaloids and their salts, in place of trying to patch up the relics of antiquity so that they may still serve, in an imperfect way, to answer the increasing demands by physicians for agents of definite therapeutic value. They had much better devote more attention to devising forms which will enable them to dispense the active agents in a manner rendering them capable of being readily kept and used, and in bringing them to the notice of physicians in such a way as to encourage their adoption.

When the active agent rather than the crude drug is recognized as the remedial substance, we shall then be no longer restricted to the seeds of the *Strychnos Nux vomica* as the source from whence to derive our medicine, but the maker of strychnine will use whatever plant he can get to yield it in paying quantities and uncontaminated with other products. The same will be true of the majority of vegetable proximate principles; and the business of searching for and extracting these medicinal agents, and of establishing their chemical and pharmacodynamic properties, will doubtless prove, for many, more congenial and profitable than life in a drug-store, with its trivial cares and annoyances, to which so many are now subjected.

To those who are concerned about the question of *how* to standardize their galenicals, we would therefore say, "Is the game worth the candle?" Better be sure that it will pay for the labor before you undertake to do it with the risk of following a side issue which may lead to nowhere, and return to the main road only to find that the rest of the world has gone on and that you have "got left."

◆

A Gastronomic Reform.

THE *Detroit Free Press* has the right idea. "There is no gastronomic abomination," it says, "more hideous than that suggested by the announcement on the bill-of-fare of the 'American-plan' hotel that 'everything in season' is served. The same force of cooks or the same expense in hiring cooks necessary to the botching of sixty dishes could make a poem of a five-course dinner of twenty dishes. So, too, it would be with the service. The well-bred man, accustomed to good living, would rather have a soup, a fish, a roast, an entrée, and a dessert, well cooked and served, than to have a greater variety of culinary monstrosities thrown at him by waiters who are too busy to do their work in a civilized manner. Good cooking, good service, less dyspepsia, and simple bills of fare printed in English would please the people."

NEWS FROM THE TRADE.

CANADA.

The semi-annual meeting of the Council of the Ontario College of Pharmacy was held in Toronto on the afternoons of February 3d and three following days. The councillors present were: Messrs. J. A. Clark, Hamilton, president; C. D. Daniels, Toronto; S. S. Hobart, Kingston; J. J. Hare, Woodstock; L. T. Lawrence, London; C. S. McGregor, Brantford; J. H. MacKenzie, North Toronto; J. McKee, Peterboro'; J. W. Slaven, Orillia; A. B. Petrie, Guelph; H. Walters, Ottawa; W. B. Sanders, Stayner.

The resignation of Mr. R. N. Murtell, of Treswalin, on account of lack of time to attend the meetings, was tendered and accepted, and Mr. S. M. Everest, of Arkona, was elected to fill the vacancy.

Messrs. MacKenzie and Daniels were appointed representatives to the Industrial Exhibition Association, and Messrs. Hare and Lawrence to the Western Fair Association.

The report of the registrar, Mr. I. T. Lewis, was presented. The receipts, including $4,278 balance from last year, were $14,913; expenditures, $6,030; balance on hand, $8,883. Assets, $42,128, including building, $17,160; lot, $5,000; furniture, $4,675, against a total liability of $15,751. Eighteen physicians have been placed on the college register since August, and the total number of apprentices who have applied for registration is 101.

Mr. E. B. Shuttleworth, the dean of the College, reported the attendance larger than ever, there being 92 juniors and 76 seniors last session. Total amount of fees paid in by students is $8,533. He recommended the abolition of the supplementary junior examinations in January, as they have not proved satisfactory. This recommendation was adopted.

The president and vice-president were named a committee to continue negotiations with the Pharmaceutical Association of the Province of Quebec with regard to reciprocity in diplomas, which so far have not been satisfactory. The Quebec Association asks too much. They require the O. C. P. licentiates to have complied with the provisions of the Ontario Pharmacy Act of 1889, which includes a junior and senior curriculum and a four years' apprenticeship (where would we older men come in?), and in return ask acceptance of the diplomas granted to licentiates of pharmacy in Quebec since 1870.

President Clark reported on the visit to the meeting of delegates of the Board of Pharmacy of United States and Canada at Old Point Comfort on September 9th and 10th last. He recommended that the O. C. P. accept no diplomas until the United States standard equalled ours.

The Building Committee recommended that a building be erected in rear of the present one, designed for practical work, the first floor to be devoted to pharmaceutical work and the second used as a clinical laboratory. The estimated cost of a plain brick structure complete was $9,350. Should this plan be adopted the College will possess the best equipped school of pharmacy in America.

Matters have assumed a most complicated turn with reference to the management and teaching of the O. C. P. Mr. E. B. Shuttleworth, who has been dean of the College since 1868, and Prof. Airson, have been turned out of their positions for the sole reason that there has been friction between the teaching staff and certain members of the Council.

When the Council met on the 5th the report of the committee appointed to advertise for professors and a registrar was read.

It was recommended that Mr. A. U. Scott, B.A., M.D. (Toronto), be appointed to Prof. Shuttleworth's position at a salary of $1,800 a year, and that Chas F. Heebner, of New York, at $1,650; G. Chambers, B.A., M.D. (Toronto), at $600; and J. F. Fotheringham, B.A., at $750, be added to the staff. After considerable energetic oratory and many personalities had been indulged in, the report was adopted.

But the end of the trouble is enveloped in nebulosity as yet. Hitherto the druggists throughout the province have been very apathetic. They elected the most popular men in the several districts and allowed them to run the show to suit themselves. The men were willing to do the work and were returned year after year. Three or four years ago a clean sweep was made in the Council. The new blood immediately began to work against the partisans of the old councils, with the result above. But the druggists are waking up. Many of the younger members of the craft, as well as most of the older, are highly indignant at such high-handed proceedings, and I have it on very good authority that the leader of the revolutionists will not be returned at the coming election. Of course it is a difficult matter to judge between right and wrong in this case, but it would seem that the whole is the result of personal spite.

GEORGIA.

On account of increase of the business of Solomons & Co., of Savannah, they have had to increase their force, and have secured the services of Marion J. Wilbor, N. Y. C. P., class '89, late with Reid & Co. Mr. Wilbor has tired of "single blessedness," and, the 21st ult., was married to Miss Carable Rahner, of Augusta. May success, and an abundance of it, attend them in their new copartnership.

It is expected that Georgia will be well represented at the coming meeting of the A. P. A. at New Orleans the 27th prox. There is no doubt that the Association will meet a *warm* reception in the Crescent City.

Dr. Fahr is just making his annual tour through Georgia in the interests of the people and Keasby & Mattison.

The late Dr. B. F. Ulmer's drug store at Savannah has just been opened in the interest of the estate. They have already had some good offers for the business as it stands.

Dr. J. S. Dunn, with Lehn & Fink, New York, is calling upon the trade, and has many stanch friends. One of them in Charleston, S. C., was so loath to part with him the other day that, in bidding him good-by, he gave him such a hearty shake as to break one of the bones in the wrist, but, while painful, a good recovery is expected.

The Alexander Drug and Seed Co., of Augusta, is out in a retail priced list, with prices distressingly close to the tap-root.

Reid & Culpepper, of Thomasville, have sold out their stock of drugs to R. Thomas, Jr., and R. C. Dickinson, and stationery and books to J. E. Robinson & Co. Messrs. R. & C. are intimately connected with the new Citizen's Savings and Trust Bank, to which they expect to devote their entire attention.

For several Sundays in Savannah the hours have been quite dull and monotonous, on account of the enforcement of the Sunday laws by the new mayor. Many of the drug stores had large displays of signs and placards, proclaiming that only medicines could be had there. The police have done their duty well, and reported promptly whatever business of any kind was being carried on or opened on Sundays. One druggist paid in five dollars for the privilege of selling a bottle of cologne; but at the last meeting of the city council the old law was repealed, and a new one substituted permitting drug stores to sell anything on Sundays excepting spirituous liquor, and that on resident physicians' *bona fide* prescriptions only. The enforcement of the law attracted a good deal of attention outside of Savannah, and the mayor received many letters daily from all parts of the State, and in fact all over the country, complimenting his stand and moral courage and nerve in enforcing the laws.

Never was a Drug Clerks' Association so much needed as in the recent Sunday Law campaign. A well-organized association could have done much toward making moral Sunday laws. The subject is attracting no little attention over the country, and now is the time for drug societies of all kinds to take hold and free themselves from such uselessly long hours.

McCauley & Co., corner Drayton and New Houston streets, Savannah, have sold out to M. Johnson & Co. Mr. Johnson first established the business and sold out, but has changed his mind, and with increased facilities will have a better trade than ever. Mr. McCauley is about to locate in "the land of flowers."

Dr. Wm. Duncan, of Savannah, whose critical illness has been reported, is gradually improving.

J. T. **Shuptrine**, one of the crack shots and deer slayers, and part owner of "Tetterine," of Savannah, has had such a "grip" that he was confined to his bed for a week or two, but is up and at business again.

C. B. **Warland**, of Savannah, has applied and is about to receive a patent for "Sabaline" and process. It is an extract of *Sabal serulata*, or Saw Palmetto, which grows in such abundance thereabout, and has hitherto been considered worthless. The Jute Trust for the past two years has so increased the price of bagging for cotton as to considerably embarrass the cotton planter, and has put many heads to thinking to produce a substitute. Mr. Warland, in experimenting, has found that the fibre makes an excellent and cheap substitute for jute in making cotton bagging, and succeeded in making a solid extract rich in tannic acid, containing over 30 per cent. He will form a company for carrying out his plans. His processes have been patented, and the enterprise promises a big industry for the State.

The school children are coming to school again since the grip and small-pox scares are over. The attendance at the public schools during the first three weeks in January was hardly 50 per cent of the pupils enrolled, while 10 per cent of the teachers were absent every day. Now the absence of a teacher is an exception, and the attendance of the children has reached 90 per cent.

The many friends here of the late **Walter Budwell** were much pained to hear of his sudden death in Roanoke, Va., an account of which recently appeared in the daily papers. He was for a long time in the store of Osceola Butler, of Savannah, where he was much esteemed and made numerous friends.

ILLINOIS.

E. A. **Lyon**, has had a new and modern front put in his store at 22d and State streets, Chicago.

W. F. **Harris**, a former clerk of Clark Bros., Chicago, died recently.

The Board of Pharmacy of this State seems to be ever progressive. Examination of candidates for certificates may now be conducted on the "practical" plan. For this purpose dispensing laboratories have been provided in Chicago and in Springfield. Under this plan the candidates are required to answer a few theoretical questions in pharmacy and chemistry, to prepare a tincture by percolation, and to write correctly and compound a specified number of prescriptions. These examinations may be taken at any time, the only additional cost to applicants being the per diem expenses of the examiners allowed by the law.

Prof. Ebert has delivered several lectures at the Chicago College of Pharmacy on "Personal Observations on Pharmacy and Pharmaceutical Practice," which have been quite interesting. The lectures on "Bacteriology" by Prof. Gradle have just closed.

The ever-recurring nightmare to legitimate, competent pharmaceutical practice has again made its appearance in this State. We refer to the two bills presented by country representatives at the General Assembly for the purpose of empowering physicians to conduct pharmacies without special registration as pharmacists, and permitting them to sell drugs promiscuously by virtue of their certificate from the Board of Health. Senator Thiele, in co-operation with a number of prominent pharmacists, is manfully fighting these bills.

Word recently reached Chicago that **Henry B. Brady**, of England, had died. As Mr. Brady was an honorary member of the Chicago College of Pharmacy, and had been actively engaged, after the conflagration of 1871, in the re-establishment of the college, the college membership, at a meeting a few days ago, voted to transmit engrossed resolutions of condolence and regret to the family of the deceased and to the Pharmaceutical Society of Great Britain. [See portrait of Mr. Brady on the first page of this journal for February 15th.]

Messrs. Forsyth & Schmid disposed of their store at Wallace and 31st streets, Chicago, to J. F. Forbrich. The firm then dissolved, Mr. Forsyth taking the store at State and 31st streets, and Mr. Schmid the one at Roseland.

Rimmele & Hiss have purchased the Wentworth Avenue Pharmacy at Wentworth ave. and 25th st., Chicago.

Geo. Umsted has opened a new store at Adams street and Centre avenue, Chicago.

C. J. **Kasbaum** has purchased the store at 378 Blue Island avenue, Chicago.

The wife of **John C. Hess**, the Division street (Chicago) druggist, died recently.

A. G. **Luning** has established a store at 1800 North Ashland avenue, Chicago.

The druggists of Chicago, with the druggist-senator Thiele at their head, are again battling the telephone monopoly in the State Legislature. With repeated and persistent assaults at the capitol and an ordinance in the city council, both for the purpose of reducing the exorbitant tariff, it is fair to presume it will not be long before the company succumbs.

The Chicago College of Pharmacy held a special meeting on February 17th for the purpose of revising the constitution and by-laws. There was a goodly attendance, which seemed to take more than ordinary interest in the proceedings. The draft prepared by the committee was adopted with but a few minor changes.

The Board of Pharmacy meets in this city for the regular examination of candidates for registration on March 11th.

The graduating exercises of the Illinois College of Pharmacy (Pharmaceutical Department, Northwestern University) for the term of '90 and '91 were held in the Grand Opera House, Chicago, Tuesday, February 24th.

The following gentlemen, from a class of forty-two, were granted diplomas:

James Benton Atkinson, Litchfield, Minn.; Arthur W. Bell, Chicago; James C. Bishop, York, Neb.; Otto C. Bock, Sheboygan, Wis.; Fred. W. Cassingham, Springfield, Ill.; Chester H. Bolles, Roberts, Ill.; John A. Dunn, Norwich, Conn.; Joel T. Fletcher, Woodburn, Ky.; Geo. F. Forster, Ottawa, Ill.; Edwin J. Jenkins, Bryan, Texas; Julius Kahn, Quincy, Ill.; Blitz G. Kenny, Hillsdale, Mich.; John Kirkpatrick, Cambridge, Ohio; M. Ben. Kohner, Chicago; William J. Lloyd, Cambria, Wis.; Arthur A. Ludwig, Chicago; Thos. B. McKelligan, Chicago; Thos. John C. Malster, Belore, Ohio; Albert C. Miller, Wellsville, Ohio; Edward R. Neill, Rushville, Ill.; Geo. D. Oglesby, Marion, Ill.; Frank E. Olin, Evanston, Ill.; Harry L. Park, Winfield, Kan.; John E. Roberts, Cambria, Wis.; Lewis M. Sawyer, Burnett, Wis.; Geo. Selmer, Droutheim, Norway; John L. Taylor, Libertyville, Ill.; William F. Voertman, Portage, Wis.; Fred. M. Wales, Lanark, Ill.

Eight students could not graduate with the class because under age or deficient in experience.

Messrs. Dunn, McKelligan, Oglesby, Roberts, and Voertman received honors.

The junior honor men were: Max Wickhorst (gold medal), Healy Davis, William C. Hayhurst, and Elmer E. Patton.

The degrees were conferred by the president of the University, Dr. Rogers, who, in his address to the class, said that pharmacy is rapidly advancing to the dignity of a profession, notwithstanding its mercantile side, and cited in evidence the circumstance that so many of the great universities are establishing departments of pharmacy. He believed that colleges of pharmacy were as much entitled to recognition by the universities as the colleges of law and medicine, and was glad to welcome the young gentlemen before him to the privileges of alumni of the university which he had the honor to represent. He urged upon the graduates the importance of broadening out their education by reading the best English literature (not the newspapers) of the day and of the past, and of keeping abreast of the progress of science, and, in short, of making themselves worthy of their degree.

President Rogers was followed by Dr. McPherson, whose address emphasized the importance of strict integrity in their business transactions, of always bearing in mind the ethics of their profession, and of never swerving in their loyalty to their Alma Mater. He closed with a humorous reference to the relation between the professions of medicine, divinity, and pharmacy. The pharmacist, said he, assists the physician in the cure of his patient, while the clergyman assists in the covering up of his mistakes.

After announcing the honor men, Prof. Oldberg pronounced a little benediction and assured the members of the class that if all the good things of the world were bestowed upon them in the abundance he wished, they would never have cause to complain of his weights and measures.

The class was banqueted by the Alumni Association at the Wellington, Prof. Quine officiating as toast-master. Speeches by Pres. Rogers, Prof. Oldberg, Dr. N. S. Davis, dean of the Medical Department Chicago Medical College; Hon. Henry Boon, dean of the Law School; Dr. J. S. Marsall, dean of the Dental College; Will H. Lowe, class of '89; Louis E. Bonn, '89; Cary Hopkins, '88; J. H. Taylor, class of '91; and last by Prof. Quine, who treated the guests to a humorous dissertation which convulsed even such sedate old gentlemen as Dr. Davis and Judge Booth with laughter.

ST. LOUIS.

In the course of human events came the annual meeting of the St. Louis College of Pharmacy Alumni Association. The attendance was large and the meeting a lengthy one. The new officers for the twelve months to come are as follows: President, Prof. Francis Hemm; first vice-president, Dr. F. A. Temm; second vice-president, H. J. Tritchler; recording secretary, Dr. J. C. Falk; corresponding secretary, H. L. Goodman; treasurer, Chas. Gietner; registrar, O. F. Heitmeyer; new members of the executive board, Dr. H. M. Whelpley, C. M. Nicholson, and J. W. Tomfohrde. The Association will give two prizes this year. One is a gold medal for the senior student making the best examination, and the other a set of fine books for the junior student making the best examination. The Association has a cash balance of over two hundred dollars on hand, and a membership list of about 150.

The College is taking active steps, through a committee, to have a new home before the next session opens. It is quite probable that the location will be on Lucas place, between Fourteenth and Twentieth streets. The object in moving is to procure a more desirable location and erect a much larger building than the old one. Special attention will be given to laboratory accommodations.

The commencement exercises will be held at Memorial Hall on the evening of March 25th.

There is a rumor that we are to have a new college of pharmacy, to be run on the cut-rate plan. This is one of the evil effects of the cut rates on patent medicines, and no doubt but what the institution would be advertised on the same principle that the nostrums are placed before the public.

The fate of the proposed amendments to the pharmacy law is not known, and the prospects are not as good as they once were, for the time is drawing near for the close of the Legislature.

The prospects for a large delegation from this city to the American Pharmaceutical Association convention is not very good. Perhaps there will be as many as last year, but the party should be much larger.

A sign in the vacant building corner of Twentieth and Market streets says that a drug store will be opened there in a few days. No information is given as to the proprietor or clerks. It is doubtful if there is much necessity of new stores in any section of the city; still those that open seem to live, if not thrive.

Frank Davis, Ph.G., of Belleville, Ill., is in the city quite frequently. He is a worker in the cause of the profession.

Mr. Snuggs has resigned his position with Adam Roth on West Olive street, and will soon commence work in a new store.

Mr. Matlock has given up his position at the Luyties Pharmacy on Washington avenue, near Leffingwell avenue, the object being to find more time for study at the College of Pharmacy. He is also president of the Omega Phi Society.

Fred. A. Moses, at one time a druggist of this city and also of Belleville, Ill., is now in the sewing machine business at Moberly, Mo. Thus it is that we drift in this world.

C. C. Borchers, Ph.G., is in charge of the dispensing department at the Missouri Pacific Hospital, and took a hand in the first use of the Koch lymph in this city. Charley is quite a doctor, even if he has not attended a medical college.

The Mississippi Valley Medical Association will hold its seventeenth annual session at St. Louis, Wednesday, Thursday, and Friday, October 14th, 15th, and 16th, 1891. A large attendance, a valuable programme, and a good time are expected. The members of the medical profession are respectfully invited to attend. I. N. Love, M.D., is chairman Committee of Arrangements, 301 N. Grand avenue, St. Louis.

Dr. H. M. Whelpley has just returned from a trip East, where he was called by the death of his grandfather, the Hon. Warren Chase.

D. L. Haigh expects to give up pharmaceutical affairs, for the present at least, and is arranging to enter on some large commercial transactions. We hope he will not forget the poor pill rollers.

Dr. J. C. Falk will conclude his work at the City Hospital April 1st, and then open an office down-town. He has no desire to again compound prescriptions.

Professor Francis Hemm is the worthy president of the Alumni Association of the St. Louis College of Pharmacy. He was a charter member of the organization fifteen years ago.

Theo. Ilg and W. R. Clark, both of this city, joined the Alumni Association of the College of Pharmacy at the March meeting.

The retail druggists of this city have called a meeting for March 6th, and propose to combine and remedy all evils. The wholesalers are invited to be present.

The reported combine of soda-water apparatus manufacturers does not seem to interest the retail druggists of this section of the country.

The St. Louis Drug Clerks' Association seems to be taking a sound and protracted sleep.

Dr. Aug. T. Fleischmann, of Sedalia, left his store long enough to visit this city recently. He says the capital of the State is sure to be located at Sedalia.

The next meeting of the St. Louis Club of Microscopists will be held the first Thursday in April.

B. J. Otto is doing a fine business in his store at the southeast corner of Morgan and 28th streets.

M. W. Alexander is taking an interest in the local druggists' meeting, which is a good point in favor of success.

There will soon be plenty of good drug clerks looking for situations, as the College of Pharmacy turns out a large class on the 25th inst.

The proposed amendments to the Pharmacy Bill have not yet passed the House.

The Laclede Pharmacy, at Sixth and Chestnut streets, keeps open all night for the accommodation of the public. Joe Tierney, the proprietor, is a very popular druggist.

The homœopathic drug stores are all doing a good business. No cut rates with them.

Remember the Missouri Board of Pharmacy meeting at Kansas City, the first Monday in April. So says Secretary Sennewald.

The funeral services of General Sherman were the occasion of a large number of strangers in the city and almost as much rush as we have in Fair week or during the Exposition. Several of the druggists are Grand Army men and took a prominent part in the procession. Nearly all of the business houses were closed in memory of the silent hero. Amateur photographers were out in full force for the procession, and several druggists and physicians were in the list.

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THE NATURAL HISTORY OF SPONGES.

SINCE time-out of-mind, pharmacists have been more or less familiar with the facts connected with the derivation, collection, preparation, and uses of sponges, but there has been no recent publication, of which we are aware, describing the structure of these curious organisms, which would especially interest this class of readers. It is only during late years that the sponges have been carefully studied, or that there has been any very clear understanding of their origin and phenomena. Indeed, it was for some time an unsettled question as to whether they were to be considered as animal or vegetable in their nature: but the facilities afforded by aquaria, and the labor of zoölogists, have permitted the decision of the question quite definitely in favor of the former. As it is, they constitute one of the simplest forms of animal existence, and have so little of what characterizes that which is commonly attributed to animal beings, that it is hardly to be wondered at that doubt as to their nature should have so long existed.

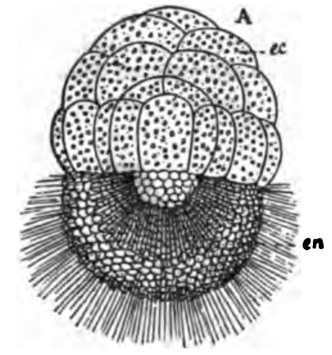
A work published a few years since by J. L. de Lanessan, upon natural history from a medical standpoint, has a chapter devoted to this subject which gives the leading features manifested by sponges in the course of their development, and which, in the translated abstract which we give below, will prove interesting as well as instructive to most of our readers.

As an illustration of the benefits derived from researches such as furnish the data for a paper like this, we will mention the recent successful efforts to propagate sponges artificially, and so to promote their development in favorable localities for commercial purposes.

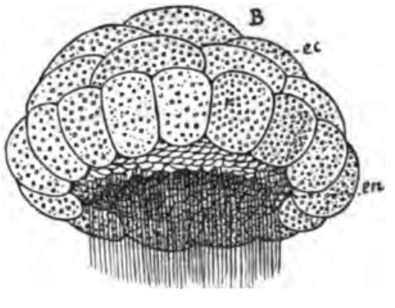
The sponges sold by druggists and others comprise but a limited variety of those which are known. Marine sponges are most numerous about the tropics, where they grow in comparatively shallow and warm water; but there are others which inhabit the deep ocean, and some of the latter are most curious and beautiful in their structure. The cornucopia-shaped sponges, with a silicious skeleton largely developed in proportion to the organic matter, so that they resemble a fine lacework of glass threads, are among the most curious and beautiful, and are so delicate and intricate as to make their representation by an engraver most difficult. Such sponges are sometimes found after storms in the ocean about Japan, and seen in museums under the name of Venus flower-basket (genus *Euplectella*).

We will study as a type of sponges the *Sycandra Raphanus*, a small and very simple calcareous sponge, of which the development has been followed with much care during recent years by several zoölogists.

The ovum of the *Sycandra Raphanus* is a single cloudy amœboid, which moves about in the substance of the body of the mother. After fecundation the ovum contracts, becomes spherical; it then divides into two, three, four, etc., equal cells in a manner to form the resulting mulberry-like body, by collection of liquid in the centre of the cellular mass—a spherical blastule, of which the cells are different. Those of the upper portion of the sphere are about thirty-two in number, rounded, with granular protoplasm; those of the lower portion are more numerous, are arranged radially, are cylindrical and clearer.



Free embryo of *Sycandra Raphanus* (Schultze): *ec*, ectoderm; *en*, endoderm.

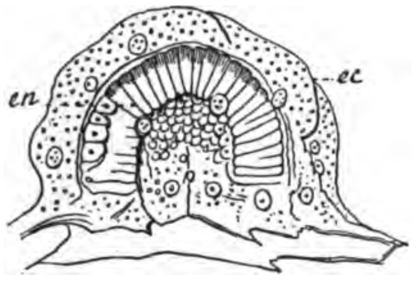


Embryo of *Sycandra Raphanus*. The endoderm. *en*, invaginated in the ectoderm, *ec* (Schultze).

While the embryo is still within the tissues of the mother, the lower portions are partially invaginated in the other; but this phenomenon is only temporary, and after the embryo has become liberated and enters the water through the separation of the maternal tissues, it becomes spherical and the segmentation cavity is very apparent. It enlarges, owing to the granular cells becoming externally more prominent. The larva thus becomes ovoid and presents two quite distinct portions: one composed of clear, cylindrical cells which acquire vibrating cilia; the other formed by the large granular cells, which remain unprovided with cilia. Among the latter may be distinguished fifteen or sixteen, most voluminous, forming an equatorial zone adjoining the ciliated cells.

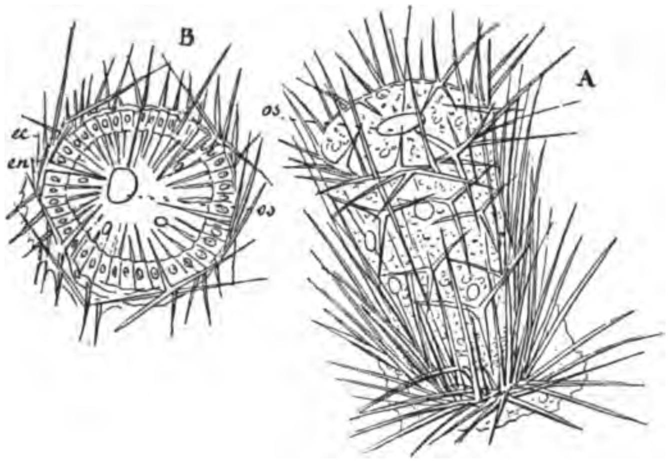
The larva lives at first free for some time, then the ciliated hemisphere becomes finally invaginated in the other, and of this the equatorial zone of large cells form the margin of the prostomium. After the invagination the larva has become a *gastrula* with a blastoderm of two layers: the exterior, or ectoderm, represented by the hemisphere of granular cells; the other, or internal, endoderm, formed by the invaginated and ciliated endoderm. The larva now hastens to affix itself upon some rock or other foreign body by the margin of its prostomium, which is considerably narrowed.

At the time of fixation the equatorial cells become amœboid and spread upon the foreign substance. The primitive mouth is thus closed, and the endodermic cells which line the cavity (now closed) loose their cilia, while the cells of the ectoderm become amœboid to the degree that it is no longer possible to distinguish their contour. Commingled thus, one with the other, they constitute what Haeckel calls a *synchytium*, which is very transparent and permits the observation of all that goes on in the cavity of the gastrula. Between the cells of the ectoderm and those of the endoderm is now developed a hyaline layer, amorphous in appearance, developed, no doubt, from the endodermic cells and representing the mesoderm. In this layer are rapidly formed little, straight, spindle-shaped, calcareous needles known as spiculas.



Fixed gastrula of *Sycandra Raphanus.*

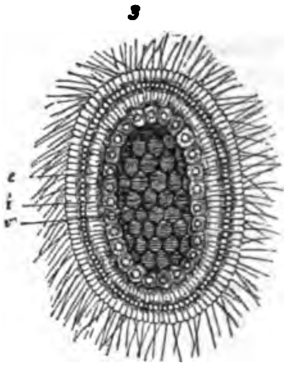
Meanwhile the larva grows and assumes a cylindrical form, fixed by one extremity, the other free. Its surface presents numerous projecting spiculas, excepting the upper surface, which is bare. Shortly it acquires at the centre of this face, by absorption of cells, an orifice communicating with the cavity, which becomes a permanent mouth, or ossicle, and is known as the exhaling orifice. At the same time, upon the sides, a large number of smaller orifices are formed by which the water enters the cavity to pass out by the mouth, and which are known as the inhaling orifices. The cells of the endoderm lining the cavity become the proper intestine, and are covered with vibrating cilia which serve to direct the water from the inhaling orifices toward the exhaling orifice. The sponge is now completely formed.



Two young specimens of *Sycandra Raphanus: os*, mouths (*oscules*); *ec*, ectoderm; *en*, endoderm (Schultze).

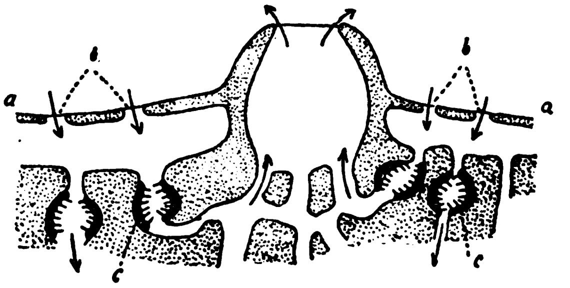
Now, knowing the development of the organism of the *Sycandra Raphanus*, it is easy to understand the structure of the more complex sponges. A bud, in the shape of a cul-de-sac, having developed upon the side of this simple sponge, enlarges in the direction of its length so as to form a cavity resembling that of the one which has given it birth. The cells which line this cavity are furnished with vibrating cilia, while the narrow canal connecting it with the cavity of the original is unprovided with cilia. The summit of the bud becomes opened outwardly in the same way as we have already seen in the case of the young *Sycandra*, and we thus have a new being, resembling the first, attached to its side, communicating with it, and provided, like it, with a mouth and with inhaling pores. This second may in turn, by budding, give birth to a third like the first two, etc. If this budding takes place at several points upon the periphery of the first individual, then a second, third, etc., we will soon have a numerous colony of sponges, of which each represents a distinct individual, formed by budding from a pre-existing one. The surface of the colony will now present as many mouths, or ossicles, as there are individual sponges entering into its composition; but later it will not be thus, because the accumulation of individuals is such that a larger number of primitive mouths become curved by the bodies of the individuals newly formed. A large number of mouths, instead of opening directly upon the surface, open into the canals which connect one individual with the others. The small number of mouths which open upon the surface acquire larger size to permit the discharge of the enormous quantity of water which enters the pores and traverses the canals and ciliated cavities of the sponge, to be ejected above.

Ascetta primordialis: Calcareous sponge. *Asconide entière* Semple (Haeckel).



Embryo of *Ascetta primordialis* (Haeckel).

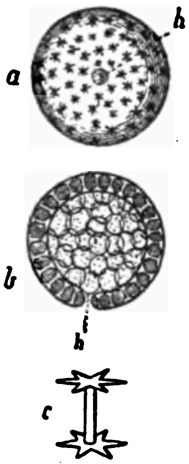
Arrived at this stage, the sponge, or rather the colony of sponges, presents a mass of very variable shape attached to a foreign body and covering a greater or lesser extent of its surface, and formed of a basic substance of amorphous appearance, perforated with connecting canals in every direction, and which connect the elliptical cavities with each other, which are large, lined with ciliated cells, and called ventricles, or baskets. In the amorphous substance, which is a true synchytium, is to be found a framework of spiculas or interlaced



Diagrammatic section of a sponge (Huxley): *a*, external covering; *b*, inhaling orifices; *c*, baskets; at the top a mouth or exhaling orifice.

fibres, and upon the surface are seen a small number of exhaling mouths and a large number of inhaling pores. The amorphous substance represents the ectoderm and mesoderm, ordinarily confounded the one for the other; the ciliated cells lining the ventricles are a product of the endoderm, while the flat cells without cilia lining the canals are considered to be of epidermic origin. Thus we see that nothing is easier than understanding the formation of a complex or polozoic sponge (one formed of several individuals) when one is familiar with that of a simple or monozoic sponge (formed of a single individual).

Let us now study a type of sponge much more complex —the *Spongilla fluviatilis*. This sponge exists in abundance in brooks and rivers, attached to bits of floating wood, stakes, etc. The fresh-water sponge has sometimes the form of small cylindrical, conical, or finger-shaped masses; sometimes the form of plates of various extent and thickness. They are colored green by the presence of chlorophyll. Their consistence is soft or spongy, and their surface, always irregular, is covered with little conical nipples, at the summit of which is found a little orifice which opens, not directly into a ventricle, but into a canal. Through the exhaling mouths the water flows continuously; and a constant and abundant supply of fresh water is essential to its existence. Under this condition it can be studied *in situ*. The entire surface of the little sponge is covered with a kind of membrane, pierced by numerous inhaling pores which open into large cavities situated directly beneath this layer. Into these cavities open, also, innumerable canals which lead to the ventricles or vibratile baskets. In the amorphous substance of the organism are scattered threads or bands of a hard, flexible substance called keratose, and silicious, needle-shaped spiculas pointed at both ends and traversed by a capillary tube filled with organic matter.

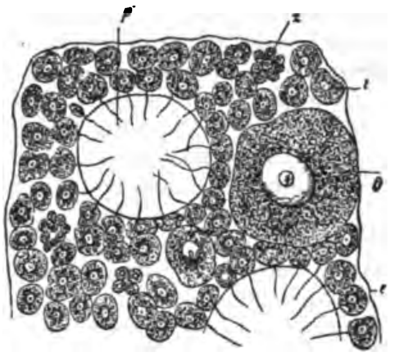


a, entire bud of a fresh-water sponge; *b*, section; *h*, hilum; *c*, an amphidisc (Huxley).

When these sponges come into contact they commonly unite at the point where they touch. On the contrary, if one of them is divided into two or more parts each one continues an independent existence.

The nutrition of the fresh-water sponge, like that of all sponges, is effected partly by the external surface, partly by penetration of nutritive matter directly into the structure, and partly by the canals and ventricles. It is essentially, as in protozoas, by diffusion. Respiration is equally direct, but seems to be most active in the neighborhood of the ciliated cells.

The reproduction of fresh-water sponges has been well studied, and is effected by two distinct processes; that is to say, by a sexual budding and by fecundated ova. The buds are formed as follows: At certain points in the body the cells of the synchytium become granular and rounded; their outlines, heretofore indistinct, become more defined. The cells thus modified form a small, spherical agglomeration. The cells composing the outer layer secrete an envelope of keratose which, in time, encloses the entire mass, except at one point where an opening remains which has been called the hilum. In each of the cells of the keratose layer is then produced a spicula called an amphidisc, formed of two stars with several rays united by a silicious bar. The protoplasm of the cells disappears, while the granular cells of the centre of the sphere maintain their vitality, and the bud, being now formed, remains in a state of repose during the winter. On the advent of warm weather the granular cells escape by the hilum and proceed to develop into new sponges.



Portion of the wall of *Ascetta primordialis*: *i*, endodermic cells; *e*, endodermic *synchytium*; *g*, ovum; *z*, spermatozoa; *p*, ciliary pore (Haeckel).

These fresh-water sponges are hermaphrodite, containing at once ova and spermatozoa; but these two varieties of cells have not the same origin. It is generally acknowledged that in all sponges the spermatozoa are produced from modified cells of the endoderm, while the ova are derived from cells of the ectoderm. The ovum consists of a single cell possessing the remarkable characteristic of being amœboid and of moving about in the substance of the synchytium. The spermatozoa are born in great numbers from the same mother-cell, and consist of a very small club-shaped body with a single vibrating cilium. Fecundation occurs in the substance of the synchytium where the ova are developed.

Sycon ciliatum. A calcareous Syconide sponge. (Schmarda.)

The ovum of the fresh-water sponge undergoes a complete and uniform segmentation, producing a mulberry-like body without an interior cavity. The exterior cells increase in number rapidly, becoming smaller than the darker interior cells, which, with less rapid growth, remain larger. These large cells constitute the endoderm, while the smaller external ones form the ectoderm. Then some of the interior cells being absorbed form a cavity in the centre of the mass, which cavity Ganin considers as a primitive intestine. This gastrula is formed neither by invagination nor by lamination, but by absorption of some of the endodermic cells. According to Mr. Ganin, this primitive intestine never has an exterior opening. When formed the larva or *planogastrula* is ovoid and regular in form, with a single layer of small ectodermic cells and two or more concentric layers of endodermic cells enclosing a cavity. Later the layer of the endodermic cells lining this cavity becomes the final endoderm, while the remaining layers constitute the mesoderm; and in the latter, filled with yellow granules, are developed the spiculas. Between the mesoderm and ectoderm exists an open interval, called by Mr. Ganin the perivisceral cavity. The cells of the mesoderm at the back part of the larva multiply rapidly, the cavity of the primitive intestine becomes narrowed and pushed forward. The larva becomes attached to some foreign object by means of the ectodermic cells of the posterior extremity, and it undergoes a change of form to that of a flattened disc. About the primitive stomach cavity there commence to form numerous tubes, like appendices, and lined with endodermic cells. During the formation of these tubes one observes at the anterior extremity that a certain number of the cells of the endoderm and mesoderm are absorbed in such a way as to produce an orifice connecting the stomach cavity with the perivisceral space, and forming what Ganin considers as a mouth of the sponge, with this remarkable characteristic, that it does not communicate with the exterior, but only with the cavity located between the mesoderm and ectoderm. Still later, however, the perivisceral cavity communicates, by absorption of ectodermic cells, with the exterior, forming inhaling and exhaling orifices.

General Characters and Divisions of Sponges.—Following what has been said, sponges may be defined as very simple organisms, living isolated, or more often in colonies; deprived of an anus; with walls furnished with inhaling pores and exhaling mouths, which, following the development of the *Sycandra Raphanus*, one cannot fail to consider as true mouths; with a body composed of an amœboid mass, perforated with canals and vibratile cavities, and commonly supported by a skeleton of calcareous or silicious fibres or spiculas. They are divisible as follows:

Sponges.
Gastric cavity without anus, perforated with numerous pores or inhalant canals.

- *Myxosponges.*—Without skeleton (*Halisarca*).
- *Calcisponges.*—Skeleton formed of calcareous spiculas, and subdivided into:
  - *Asconides:* Thin walls. Short canals without ramifications.
  - *Syconides:* Thick walls. Long canals without ramifications.
  - *Leuconides:* Thick walls. Canals very long and ramifying.
- *Silicosponges.* — Skeleton formed of silicious spiculas. Perforators of the shells of mollusks (*Clionides*).
- *Fibrosponges.*—Skeleton formed of threads of keratose interlaced with silicious spiculas, more or less abundant.

The fibrous sponges, last named, are the only ones employed for medical or industrial purposes, and comprise several species.

Note on Aconitine.

The following is an abstract of a paper containing the results of investigations by the late Edwin Richards, completed by F. Ashley Rogers. The former had completed the work and had written part of the paper before his death. It was completed by Mr. Rogers and published in abstract by the *Chemist and Druggist*. We give only that portion which deals with the preparation of aconitine.

In this paper, unless otherwise stated, by aconitine is meant *crystalline aconitine*, obtained by the improved process from the root of *Aconitum Napellus*, which we believe to be the best source of aconitine, and the crystalline to be the only pure form of the alkaloid.

In the first step, crushed Napellus aconite root is to be macerated in the cold in washed fusel oil for three or four days, with frequent stirring. [We should certainly recommend to employ finely powdered aconite root, to pack it in a percolator, to pour washed fusel oil on it until it is permeated, and then to let it macerate for a few days, after which percolation may proceed.—Ed. Am. Drugg.] Percolate and wash out the alkaloid with very dilute acid (sulphuric acid 2 fluidrachms to the gallon of water) in small quantities at a time. This liquid should be acid to test paper. Test the liquid from time to time until all the alkaloid is extracted. In the second step, shake the liquid with washed methylated ether [in this country with "washed ether."—Ed. Am. Dr.] sp. gr. 0.730, two or three times, to get rid of fusel oil, and then gently warm the liquor on a water bath for a few hours to dissipate the remaining ether. In the third stage, precipitate the alkaloid, when the liquor is quite cold, with solution of carbonate of sodium. The precipitate, which is nearly white, should be strained on a cloth and pressed between chalk stones, then transferred to bibulous paper and exposed to the air to dry.

Fourthly, when dry, transfer it to a flask fitted with a long tube, and boil it some time with washed and dried ether; then filter into a basin, when nearly the whole of the alkaloid will crystallize out. A ring of uncrystallized gummy matter forms above the crystals, which can be dissolved out with a little pure cold ether, in which it is very soluble, while the crystals are not. Transfer the crystals while damp to bibulous paper to dry spontaneously.

For the above portion of our process we are indebted to the late Mr. John Williams, an improvement on his first published process for the preparation of crystalline aconitine, and his death alone prevented the world from hearing of it from himself. This process produces fairly easily a very fine crystalline aconitine. Two years ago we advanced the opinion that the crystalline aconitine thus prepared was of the highest purity, and hence possessed the greatest toxic properties.

Further work in this direction, although verifying the first part of this statement, has led us to modify the statement as to toxicity, for we find that by converting this aconitine into the nitrate, and subsequent recovery of the alkaloid by the process first published by Dr. Alder Wright and detailed in Mr. Williams' paper published in the *Year Book of Pharmacy* for 1886, page 431, the result is that a crystalline product is obtained physically resembling its original, but possessing far greater toxic properties.

To the process as detailed under the four divisions must therefore be added a fifth division, which, as Dr. Wright's process for the conversion of aconitine into nitrate and recovery therefrom, is well known in the pharmaceutical world. This, then, is our improved process, and it only requires of the operator considerable practice, chiefly in its fifth stage, to obtain readily what we hold to be the most potent aconitine discovered.

It will be recollected that, as a result of the first work on this subject, we discountenanced the genuineness of aconitine recovered from the nitrate, on account of the difficulty which we had in reproducing the alkaloid in its characteristic crystalline form—a difficulty which Williams found insuperable; but we have now succeeded by much practice, which was not available to him, in obtaining the characteristic crystalline aconitine fairly readily from the nitrate.

The justification for our process is to be found, we believe, in the future examination of the product in comparison with that of any other, which we will now give toxicologically and chemically.

The relative toxicity of several aconitines and their salts was kindly ascertained for us by a medical friend who is a lecturer on physiology at a well-known university college. We supplied him with the following solutions, each of the strength of 1 in 2,000 of the alkaloid in a mixture of nearly equal parts of alcohol and water, the alkaloid being very sparingly soluble in water:

Solution A.—Aconitine previous to conversion into nitrate and recovery therefrom.
Solution B.—Amorphous commercial aconitine.
Solution C.—Nitrate of aconitine.
Solution D.—Aconitine recovered from the nitrate.
Solution E.—Jap-aconitine (from Japanese aconite root).

One Mgm. per kilo body-weight was injected under the skin of the back of a rabbit, with results as follows:

Solution A.—Death occurred in fifty-six minutes.
Solution B.—No apparent effect was produced, and although another injection was tried after an interval of eleven hours, the animal remained unaffected.
Solution C.—Death occurred in twelve minutes.
Solution D.—Death occurred in nine minutes.
Solution E.—Death occurred in seventy-five minutes.

Thus, contrary to our expectations, the aconitine recovered from the nitrate—or, as we prefer to call it, *beta-aconitine*—appears to be an exceedingly potent preparation, and the most potent alkaloid obtainable from *Aconitine Napellus*, or probably from any other aconite. The nitrate of aconitine is, it will be seen, almost as powerful as the alkaloid recovered from the salt. This would suggest that a constitutional change in the alkaloid is effected by means of nitric acid.

The apparent inertness of the amorphous preparation is a strong argument, if any be still needed, in favor of the official recognition of the crystalline alkaloid exclusively. Commercial aconitine is well known to be an exceedingly indefinite preparation. We have ourselves found samples varying enormously in activity; and although we have not before met with a specimen so inert as that mentioned, still we were not much surprised at the results obtained with solution B.

Solution A.—The action of this solution of nap-aconitine is decidedly contrary to the somewhat prevalent notion that this alkaloid is not so potent as the jap-aconitine. It should be observed that the jap-aconitine solution used was the alkaloid previous to conversion into nitrate and recovery therefrom.

We have not yet had the opportunity of preparing a solution of recovered jap-aconitine for comparison with the action of solution D.

IN a subsequent issue of the same periodical the authors continue their observations as follows:

MELTING POINT.

This was given as 183° to 184° C. (uncorrected). The authors have, however, found that aconitine, before being converted into nitrate, had a melting point of 182°–184°, while, after it had been recovered from the nitrate, its melting point was 178° to 180° C. They assume, therefore, for the present the existence of two isomeric forms of aconitine, calling the higher melting one the alpha, and the lower melting one the beta, variety.

The Composition of Aconitine.—This was determined by the authors to be $C_{33}H_{43}NO_{12}$.

In the following we quote the authors directly :

ISOMERIC FORMS.

From the results enumerated we are inclined to the opinion that there are probably two modifications of crystalline aconitine, which we call "alpha" and "beta." As we are not aware that this idea has been previously advanced, we think further investigation will elucidate the point. We have designated that obtained direct from the root as alpha-aconitine, and that recovered from the nitrate as beta-aconitine. We here summarize the results which have led us to form this opinion:

1. Both aconitines are obtainable in crystals of the same form and size.
2. Both possess the same chemical formula.
3. Melting point of alpha-aconitine, 182°–184° C. (uncorrected).
4. The toxicity of alpha-aconitine is only one-sixth of that of beta-aconitine.

ESTIMATION OF THE YIELD.

We have estimated the yield of the aconites used by us as under, these yields representing in all cases alpha-aconitine. We have not yet estimated the yield of beta-aconitine obtainable from the alpha alkaloid:

Japanese aconite root (dry), about 40 grains from 1 pound of root, or 0.57 per cent.

Aconitum Napellus (dry), about 10 grains from 1 pound of root, or 0.14 per cent,

Aconitum Napellus (fresh), supplied by Mr. Ransom, about 50 grains from 1 pound of root, or 0.71 per cent. Fresh root (wild), supplied by Dr. Heath, gave us the same yield as did fresh roots supplied by Prof. Baker from Kew, and by Mr. Davies from the garden of the Society of Apothecaries, Chelsea; but the crystals came out much more readily from the wild than from any other aconite.

From the above results we are led to believe that the fresh root of *Aconitum Napellus* yields most abundantly the most potent aconite obtainable. We may say that all our fresh roots were collected in the spring before the flower buds were formed, and we are of the opinion that this is the proper time for the collection of the root; but, as we have not yet seen any results given of aconitine from aconite collected at any other period of the year, the point is still an open one.

The question arises as to how *Aconitum Napellus* is to be distinguished in the early spring from other aconites likely to be found growing with it. As mentioned by Mr. Holmes in a paper read before the British Pharmaceutical Conference in 1888, the leaves of *Aconitum Napellus*, which appear very early, form, when the stem is about six or eight inches high, a dense tuft, the segments of the leaves spreading and drooping at the ends. But in the aconites likely to be found with *A. Napellus*—*A. variegatum*, *A. paniculatum*, etc.—the leaves, when young, are rigid, and the segments are close together and in one plane, and do not form a tuft. The wild plant appears to have the best root, if only on account of the ease with which it gives up its aconitine; but doubtless the wild plant's environments could be imitated, and a uniform root, yielding a uniform alkaloid, would give existing preparations a fairer trial than they have yet had.

New Proximate Principles from Javanese Medicinal Plants.

M. GRESHOFF, who has charge of a pharmacological and chemical laboratory established by the government of Netherlands-India at Buitenzorg (Java) for the purpose of making systematic investigations of the native useful plants, has recently published a new instalment of the results obtained by him, both in extenso and in abstract. From the latter (contained in the *Berichte*, xxiii., p. 3537) we select the more important portions.

1. *Carpaine*, an alkaloid contained in the leaves of *Carica Papaya* L. This had been entirely overlooked heretofore. It can be obtained by various methods. Young leaves contain about 0.25 per cent of it. The milk sap, bark, seeds, and root of the papaw tree contain only traces of it. It is a strong base, forming salts with acids. The hydrochlorate, containing 82 per cent of the alkaloid, is being tested physiologically.

Carpaine is soluble in alcohol, chloroform, and ether (in the latter readily so while freshly precipitated, less so after it has crystallized). A solution of the alkaloid in 100,000 parts of water still possesses a bitter taste. It is poisonous only in large doses.

2. *Derrid*, a non-nitrogenized resinous principle (not a glucoside), obtained from *Derris* (*Pongamia*) *elliptica* Benth.

The plant is used upon Java by fishermen for stupefying fish. It appears also to be a constituent of the arrow poison (siren) used upon Borneo. It has an extraordinarily powerful action upon fish. A decoction of 1 part of the root in 300,000 parts of water is still poisonous.

Derrid is soluble in alcohol, ether, chloroform, very little in water or potassa solution. Its alcoholic solution has a feebly acid reaction, a sharp aromatic taste, and produces upon the tongue an imperfect numbness, which lasts, however, for hours.

Derrid is localized in the bark of the root, the yield being 2.5 to 3 per cent of the weight of the root.

The effect of derrid upon fish is most energetic. Even large fish die almost instantly when brought into water containing only 1 part of derrid in 5,000,000.

3. *Pachyrizid*, a body resembling *derrid*, extracted from *Pachyrhizus angulatus* Rich.

This plant has a bad reputation among the natives. A decoction of 1 part of the seeds in 125,000 acts as a rapid poison to small animals. Pachyrhizid is more readily prepared in a pure state than derrid, and appears to be identical with the latter; but this requires confirmation.

4. *Alkaloid from Sophora tomentosa* L.

This plant was once in great repute for its medicinal properties. It contains a poisonous alkaloid—chiefly residing in the bitter seeds—which has not yet been sufficiently studied.

5. *Alkaloid from Erythrina* (*Stenotropis*) *Broteroi* Hassk.

The bark of this contains considerable alkaloid which is a powerful, paralyzing poison.

6. *Alkaloid from Acacia tenerrima* Jungh.

This is the first alkaloid discovered in any species of Acacia. It is extracted from the bark, amorphous, bitter, and poisonous.

7. *Cathartic Acid* and *Saponin.*—The former exists in

the leaves of *Albizzia Saponaria* Bl., and the latter abundantly in the seeds and bark ofthe same tree.

8. *Alkaloids* were also discovered in the following:

Crotalaria retusa L. and *C. striata* L. The alkaloid is quite poisonous, which is in harmony with other alkaloids derived from allied plants (Cystisus, Ulex, Spartium, Lupinus);
Pithecolobium, var. spec.;
Melodinus lævigatus Bl.;
Leuconotis eugenifolia Dec.;
Rauwolfia, var. spec.;
Hunteria Roxb.;
Pseudochrosia Bl.; and in numerous others, here omitted.

9. *Active Principles of Cerbera Odallam* Hamilt.

Every part of Cerbera—milk sap, leaves, and bark—is toxicologically inert, with the sole exception of the *kernel of the seed*.

The latter contains (besides a non-poisonous fatty oil) cerberin, a cardiac poison, much resembling tanghinine (from *Tanghinia venenifera* Poir of Madagascar). Cerberin contains no nitrogen, crystallizes well, is almost insoluble in water, easily soluble in alcohol, chloroform, and ether. It has a sharp, burning taste and is very poisonous. The author has discovered another poisonous principle, which is very bitter, easily soluble in water but not in chloroform, which he named odollin [should be odallin].

10. *Laurotetanine.*

This name is given by the author to an alkaloid existing in various members of the order Lauraceæ in Java.

It is best extracted by Stas' process, chloroform being the best solvent. Caustic soda or potassa cannot be used for isolating it, as it is soluble in an excess of the alkalies. Sodium carbonate must be used.

Laurotetanine is a poison producing tetanus, like strychnine, though a little more feeble.

11. *Hydrocyanic Acid* as a plant constituent.

The author has examined a number of plants with a view to determine whether they contained hydrocyanic acid or substances capable of producing the latter.

He found that a plant belonging to the Asclepiadaceæ, viz., *Gymnema latifolium* Wall, contained a large amount of amygdalin, but not a trace of emulsin or other ferment capable of decomposing the former. When the amygdalin was, however, brought in contact with emulsin derived from other sources, the usual decomposition —production of benzaldehyde (oil of bitter almonds) and hydrocyanic acid—took place.

One of the most interesting trees he examined is *Pangium edule* Reinw. The seed kernels of this are an important article of food for the Malays, but they require special preparation (boiling with water, etc.) before they can be used. In their raw condition they are powerfully poisonous. In fact, all parts of the Pangium are used on Java as poison for insects, killing fish, etc.

The author found all parts of the tree to contain *free* hydrocyanic acid. The leaves yielded on distillation 0.34 per cent, corresponding to over 1 per cent when referred to the leaves in a dried state. Other parts contain less, but still notable quantities. He estimates the total quantity of hydrocyanic acid contained in an average Pangium tree to be about 350 Gm.

Note on Saponin.

OTTO HESSE has studied the constitution of saponin, regarding which the statements of various investigators heretofore differed. In the first place, he comes to the conclusion that "saponin" obtained from Saponaria root, "quillajin" from Quillaja, and other similar bodies obtained from other sources, which had already been comprised under the general name of saponin by Christophsohn, are identical with "senegin" from Senega root.

Led by the study of the manner in which the substance splits, under proper treatment, into sapogenol ($C_{14}H_{22}O_2$) and glucose, he holds that the molecule of saponin is represented by $C_{32}H_{52}O_{17}$, the splitting up of this glucoside occurring by the interreaction of 2 molecules of it with 6 molecules of water:

$$\underset{\text{saponin}}{2C_{32}H_{52}O_{17}} + \underset{\text{water}}{6H_2O} = \underset{\text{sapogenol}}{2C_{14}H_{22}O_2} + \underset{\text{glucose}}{6C_6H_{12}O_6}$$

—After *Lieb. Annal.*, 261, 371.

How to Judge the Quality of Condensed Milk.

THE general appearance when poured from a spoon should be glossy; the more glossy the better. It should be ropy or stringy, like very heavy syrup.

The color should be that of cream, but the color varies according to the season of the year in which the milk is condensed, the same as milk not condensed varies in color. Milk is more yellow in summer, when cows are on pasture, than in winter, when they are fed on dry hay.

Thickness varies with age. Thickening by age is natural to condensed milk; rapid thickening only proves that the milk is preserved in the best manner and that it retains in the highest degree the characteristics of milk in its natural state.

Condensed milk which does not thicken by age, or which thickens very slowly, is milk abused in the process of condensing.

Consumers make a great mistake in supposing that the thinnest condensed milk is the best.

The thinnest condensed milk usually contains the most water, and, of course, less milk solids or milk nutritives. The thickest condensed milk, if in sound condition, is the most valuable. It is, however, to be noted that the viscosity of condensed milk depends much on the temperature at which it is condensed. A milk containing 50 per cent of solids, evaporated at a very low temperature in the vacuum pan, may be more fluid or thinner than one containing 42 or 44 per cent which has been heated higher.

How Galls Grow.

AT a recent evening meeting of the Pharmaceutical Society of Great Britain, Prof. Traill, of Aberdeen, addressed the audience on the subject "How Galls Grow." Following is the more interesting portion of his remarks (after *Pharm. Journ.*):

There are over a hundred different kinds of galls; they grow chiefly on the oak. But comparatively few are found in commerce, because it is a few only that contain a sufficient amount of tannic and gallic acids to make their collection profitable. Still, nearly all contain these acids. Chinese galls are formed by a different group of insects from those of the oak. As to oak galls, nearly one hundred kinds are described, and they are mostly formed by a puncture of the gall fly, a species of hymenoptera belonging to the *Cynipedæ*. A few, however, are produced by gall midges, a two-winged insect like the mosquito. It is at the end of spring or in May that the leaves of the trees are punctured by the insects.

The catkin of the oak is also touched, the galls formed being like red currants, and are soft, spongy, and sappy; but generally galls become hard, and in the centre is found the grub or larva of the insect in a single cavity. That applies in some cases; it is different in the oak apple, where there are a number of holes, each with its grub. It is these grubs which make the galls grow. Unhappily, other insects find a lodgment for their grubs in the galls, and these feed upon the substance and do not assist in the growth, while there are also parasites which destroy the gall grub.

One peculiar thing about the gall fly is that it is a subject of dimorphism; that is, there are two kinds of the same species, one producing galls in the spring, the other in the autumn. The galls are dissimilar and so are the larvæ—facts which have given rise to a great deal of confusion.

There are ten or twelve British species which are known to be dimorphic. Generally it may be said that each fly, each tree, and each season gives rise to its own kind of gall, and even the depth of the puncture determines the nature of the gall.

Chinese galls differ very materially from oak galls. The insect which produces them is an aphis or green fly, which attacks the *Rhus* and other plants. Unlike the gall fly of Europe, it not only deposits its eggs in the puncture, but it gets inside the gall itself, and continues to live on the juice of the plant as long as life is given to it; and that is why Chinese galls contain such a profusion of insect remains.

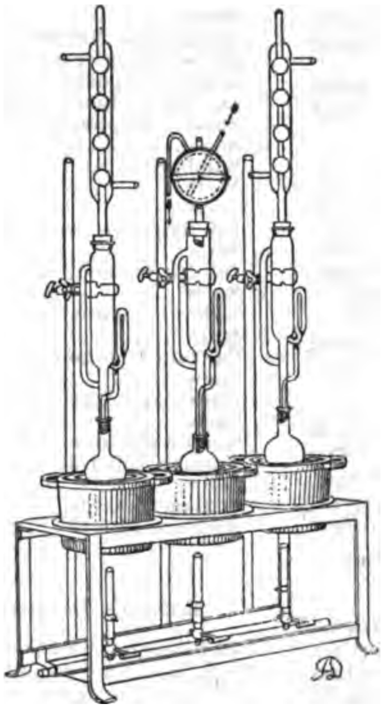
Besides these galls, Prof. Traill mentioned many others which are of no pharmaceutical interest. He remarked that it was difficult to define what a gall is, and that it was impossible to say how they were formed.

New Reagent for Tartaric Acid.

According to Moehler (*Pharm. Rundschau*), a delicate reagent for tartaric acid is a solution of 1 part of resorcin in 100 parts of concentrated sulphuric acid. On evaporating a solution containing tartaric acid to dryness, adding to the residue 1 C.c. of the above-mentioned reagent, and gently warming without much stirring, red stripes will begin to emanate from the bottom of the capsule, or, if a notable quantity of tartaric acid is present, the whole liquid will become red. If organic substances are present which impart a dark color to sulphuric acid, such as sugar, gum, extractives, etc., these must first be destroyed by means of nitric acid and every trace of the latter afterwards expelled, since this would cause a deep blue color with resorcin, which would mask the red tint due to the tartaric acid. Benzoic, succinic, malic, and citric acids do not give this reaction.—*Neueste Erf. & Erf.*

MUENKE'S SUPPORT FOR EXTRACTORS.

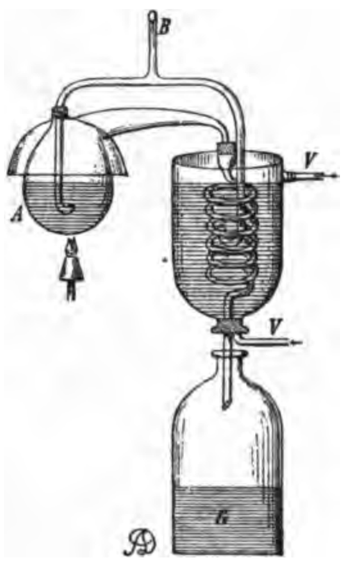
Robert Muenke, of Berlin, has put on the market a durable support for extraction apparatus, combining all necessary features. That shown in the cut has three water baths, with gas burners under each, and three upright rods with clamps for the support of the extractors. The condensers, if properly inserted, need no support. — After *Chem. Zeitung.*



Muenke's Extractor Support.

KALECSINSZKY'S CONTINUOUS AND AUTOMATIC WATER STILL.

The apparatus shown in the cut has been devised by Alexander Kalecsinszky. A retort, A, is connected with a condensing worm contained in a wide glass vessel, through which passes a constant but not too rapid stream of water. The retort is half filled with water at the start, and to prevent radiation of heat a cover, such as a porcelain bell, is put over it. Through the neck of the retort passes a glass tube of the shape shown in the illustration. The end of this tube inside of the retort is slightly bent upward, which is done for the purpose of producing a small water joint at the bend capable of preventing the passage of air up the tube. The other leg of the tube dips into the water of condensation. The vessel containing the latter is adjusted at such a height that the level of the water contained in it, when in full operation, shall be on a line with the point to which it is desired to keep the retort filled. On starting the operation the air contained in the communicating glass tube is aspirated through B, whereupon the whole tube will become filled with water. B being now tightly closed, the tube will act as a siphon, keeping the level of the two liquids, in the retort and the condenser, alike. From this time on the apparatus will continue working automatically, provided care is taken that no air can get into the tube B. The distillation of the water proceeds uninterruptedly, and all that is necessary is to change the receiver from time to time.—*Chem. Centralbl.*, 1891, 299.



Kalecsinszky's Still.

* * *

Undertaker—And what kind of trimmings will you have on the coffin?

Widow—Nane ava', a plain coffin. It was trimmins that killed him.

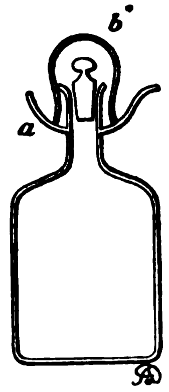
Undertaker—What?

Widow—Ay, delirium trimmins.

FIUMI'S REAGENT BOTTLE.

For the purpose of preventing the deterioration of reagents which are affected by contact with air, Johann Fiumi advises the use of reagent bottles provided with a cup-shaped receptacle about the neck, which is to be partly filled with a mixture of equal parts of water and glycerin, after which a bell glass, *b*, is to be put over the stopper, thus making a glycerin joint. These bottles are, at the same time, made from dark amber glass. The cup around the neck has a lip from which the contents may be poured. When the reagent is to be used, the glycerin is poured out, the cup rinsed out if necessary, and the stopper then withdrawn.

The author states that he has kept solution of hydrosulphuric acid for months unchanged in such bottles.—*Chem. Zeitung*, 14, 1063.



Fiumi's Reagent Bottle.

Terpin Iodide.

Dr. W. H. Gregg, of New York, recommends "terpin iodide" as an antiseptic agent for the purpose of preventing the development of certain acute diseases of the lungs, such as acute congestion, pneumonia, and the catarrhal and throat affections which are often the precursory monitors of more serious mischief.

He believes that terpin iodide enters into the circulation unchanged, since he finds that it acts as quickly when given by the mouth as if it were given hypodermically. While it is a powerful antiseptic, it is comparatively harmless, no unpleasant effects having been noticed by the prescriber.—After *N. Y. Med. Journ.*

What is here called terpin iodide is, no doubt, the hydriodide of terpin, $C_{10}H_{16}HI$, a liquid corresponding in composition to the solid, so-called artificial camphor, the hydrochloride of terpin, $C_{10}H_{16}HCl$. It is prepared by conducting the vapor of hydriodic acid into French or American oil of terpentine, the latter being either pure or diluted with benzin or carbon disulphide.

* * *

Syrup of Tolu and Alkalies.—Mr. Lermigaux and the editor of the *Bulletin Commerciel* (of L'Union Pharmaceutique) point out that syrup of tolu is altered in color when coming in contact with alkalies. Though it may originally be colorless, or practically so, it acquires a yellowish or yellowish-green color when treated with sodium carbonate, dilute caustic potassa, ammonia, and other alkalies. A similar change of tint, though more feeble, is produced by iodide or bromide of potassium of commerce, since these salts usually have a faintly alkaline reaction.

Christia.

THIS is the name of a new impervious dressing recommended as a substitute for gutta-percha tissue. It is prepared from the fibres of manilla hemp, and impregnated with a matter unaffected by water, alcohol, chloroform, ether, ammonia, or fats. It has the appearance of a dark gutta-percha tissue, is dark brown in color, transparent, may be folded, bunched, or tied in knots, and can be readily smoothed out again by stroking with the hand. It is, however, not elastic. It does not become sticky, and may be used in any climate.

The "christia" is not only supplied pure and simple, but also impregnated with boric, carbolic, and salicylic acids, iodol, etc.—After *Pharm. Zeit.* (No. 7).

The Constitution of Oil of Rose.

TH. POLECK has made a preliminary report of results which he has obtained in the study of the composition of oil of rose. The oils he had under his hands were:

1. A sample of the purest Kezanlik oil of rose, deprived of its stearopten, and supplied by the well-known house of Schimmel & Co.
2. A sample of the oil distilled by Schimmel & Co. from roses of their own cultivation, the purity of which was guaranteed.

On subjection of the oils to fractional distillation, the first fraction of the German oil passed over between 79° and 81° C. After being rectified it boiled at 79° C. It turned out to be ethylic alcohol, amounting to 5 per cent of the oil. No terpenes could be discovered. The German oil was then freed from its stearopten and fractionated under diminished pressure. The largest portion—which seems also to be the sole high-boiling constituent—which passed over at 110°-120° under a diminished pressure (of 14 Mm.), was afterwards found to have the boiling point 215° C.

The Turkish oil yielded the same constituents. Both high-boiling liquid fractions—that of the German as well as that of the Turkish oil—are faintly lævogyre. The specific gravity of the German is 0.8837 at 11° C., and that of the Turkish 0.8813 at 12° C. Their composition corresponds to the formula $C_{10}H_{18}O$, which needs further study.—Abstract from *Berichte*, vol. 23, 3554.

Note on Gun Cotton.

IN a recent lecture on gun cotton delivered by Professor Munroe, of the Torpedo Station at Newport, the lecturer declared that gun cotton, correctly prepared and handled according to directions, was the safest of explosives to use. It was dangerous only when the materials had not been thoroughly purified, or the union of acid and cotton incomplete.

In proof of what could be done with it, a picture was thrown upon the screen showing the workman cutting it with chisel, jig-saw, and lathe to fit it into a shell. Another illustration was the extinguishing of a block that was burning by pouring water upon it. Two thousand pounds of it had been burned in a bonfire without an explosion.

One volume of the explosive gives 829 of the gas, and the pressure developed by combustion is 81 tons to the square inch, and by detonation 157.5 tons, the latter being in contact, however. The effect of the explosion of one particle on another is so rapid that it would take only one second for it to pass through 19,000 feet of the explosive.

It was shown by the stereopticon that the letters U. S. N., with the date of manufacture, that are in the bottom of each block, are impressed upon an iron plate upon which the gun cotton may be exploded. It is a curious fact that, if the marks on the block are in relief, the reproduction on the iron will be raised; and if cut in, there will be an indentation on the plate. Professor Munroe's theory is that when the letters are cut into the explosive, the gases generated in the indentations are hurled from them as a projectile from a gun. If a leaf or a delicate piece of lace be laid between the gun cotton and the iron, its impress will be left in all the perfection of outline of the original, though the article itself is absolutely annihilated.

Freezing Mixtures.

THE following selection of mixtures causing various degrees of cold, the starting point of the cooling being indicated in the first column, will probably serve many purposes. It should be stated that the amount of depression in temperature will practically be the same, even if the temperature to start from is higher. Of course, in the case of snow it cannot be higher than 0° C. (32° F.). But in some cases it is necessary to start at a temperature below 0° C. For instance, the temperature of —49° C. may be reached by mixing 1 part of snow with ½ part of dilute nitric acid. But then the snow must have the temperature —23° C. If it were only at 0° C. the depression would be only to about —26° C :

Substances to be mixed in parts by weight.		The temperature sinks	
		from	to
1. Water Ammonium Nitrate	1 1	+ 10° C.	— 15.5° C.
2. Dil. Hydrochloric Acid Sodium Sulphate	10 16	+ 10	— 17.8
3. Dil. Hydrochloric Acid Sodium Sulphate	1 1½	+ 10	— 16
4. Snow Sulphuric Acid Water	1 4 1	+ 0	— 32.5
5. Snow Dil. Sulphuric Acid	1 1	— 7	— 51
6. Snow Dil. Nitric Acid	1 ½	— 23	— 49
7. Snow Sodium Chloride	1 1	0	— 17.8
8. Snow Calcium Chloride	1 1.8	0	— 49
9. Snow Hydrochloric Acid	1 0.625	0	— 33
10. Snow Sodium Chloride Ammon. Chloride	1 0.4 0.2	0	— 24
11. Snow Sodium Chloride Ammon. Nitrate	1 0.416 0.416	0	— 31

Edison's Definition of Ampere and Volt.

THE following question was put to Thomas A. Edison by John S. Wise in a recent lawsuit in which Mr. Edison was a witness. The answer by Mr. Edison gives a pretty clear definition of the words "ampère" and "volt," which are now much used :

Q.—"Explain what is meant by the number of volts in an electric current."

A.—"I will have to use the analogy of a waterfall to explain. Say we have a current of water and a turbine wheel. If I have a turbine wheel and allow a thousand gallons per second to fall from a height of 1 foot on the turbine, I get a certain power, we will say 1 horse power. Now, the 1 foot of fall will represent 1 volt of pressure in electricity, and the thousand gallons will represent the ampère or the amount of current; we will call that 1 ampère Thus we have a thousand gallons of water or 1 ampère, falling 1 foot or 1 volt or under 1 volt of pressure, and the water working the turbine gives 1 horse power. If, now, we go a thousand feet high, and take 1 gallon of water and let it fall on the turbine wheel, we will get the same power as we had before, namely, 1 horse power. We have got a thousand times less current or less water, and we will have a thousandth of an ampère in place of 1 ampère, and we will have a thousand volts in place of 1 volt, and we will have a fall of water a thousand feet as against 1 foot. Now, the fall of the water, or the height from which it falls, is the pressure or volts in electricity, and the amount of water is the ampères. It will be seen that a thousand gallons a minute falling on a man from a height of only 1 foot would be no danger to the man, and that if we took 1 gallon and took it up a thousand feet and let it fall down it would crush him. So it is not the quantity or current of water that does the damage, but it is the velocity or the pressure that produces the effect."

Bromine in the United States.

THE most important bromine works in this country are at Canal Dover, Ohio. These were opened in 1871, and last year the output of the works was 200,000 pounds, only 110,000 pounds coming from the other works in Western Pennsylvania, Western Virginia, and Michigan.

Bromine is a by-product of the salt industry, occurring in the form of bromides in the bittern. The proportion between the bromides and salt differs in different localities. At Canal Dover, Ohio, from 1877 to 1887 there were produced 222,669 pounds of bromine and 259,350 barrels of salt, or about 6 pounds of bromine to 7 barrels of salt. In the Pomeroy district the proportion was 1 pound of bromine to 2 barrels of salt. To produce the bromine about half a million pounds of pyrolusite are required.

In Michigan potassium chlorate is used as the oxidizing agent, as the bittern there contains a large proportion of calcium chloride. Potassium chlorate requiring less sulphuric acid, the deposit of calcium sulphate is not so great when it is used, so that it gives less trouble.

[A description of the method employed and other matters of interest connected with the works at Canal Dover, Ohio, were published by this journal in the issue for the month of July, 1884.—ED. AMER. DRUGG.]

A New Solvent for Cellulose.

MESSRS. CROSS & BEVAN have found that an acid solution of chloride of zinc is a most efficient solvent of cellulose. It is best prepared by dissolving in concentrated hydrochloric acid half its weight of chloride of zinc, thus producing a liquid of the spec. grav. 1.440. This dissolves cellulose instantly and without apparently changing it chemically. Cellulose may also be dissolved by heating it with a concentrated solution of zinc chloride; and this may be diluted with hydrochloric acid without precipitating any of the dissolved products. But the beforementioned acid solution has the advantage that it effects the solution in the cold and at once.

The reagent is of special value in the elucidation of structural problems under the microscope. All forms of pure cellulose are rapidly dissolved by it, and the various stages preceding their final disappearance may be observed under the lens, the observation throwing much light on structural peculiarities. The raw fibres, such as cotton and flax, are not dissolved, at least only partially; but they swell up under the action of the reagent, with the result that the structural features are brought out with great prominence. Jute, and the ligno-celluloses generally, are dissolved by it, and many of the adipo-celluloses also.—After *Chem. News.*

Note on Granulated Salts.

MR. HEDLEY PATTERSON, in a recent paper read at Newcastle-on-Tyne on the subject of effervescent preparations, spoke of the methods of preparing granulated salts at present in use, and mentioned one which seems to be used in practice, but is only known to a few.

The first process in use is to make the ingredients into a tough paste with alcohol, press the mass through a sieve, and dry quickly. Another method is to heat the dried ingredients together until a temperature between 200° and 212° F. is reached, stirring well all the while so as to form granules; then, by means of suitable sieves, separating the granules and preserving in well-closed bottles.

To both of these processes, the author says, there are objections. The first method, of course, is too expensive. In the second method, official in the British Pharmacopœia, there is a large amount of waste, as it is impossible to get all the base and active ingredients into granular form, the larger proportion of powdery product mixed with the granules giving the preparation an inelegant and "saline" appearance. According to the official directions, the granules are to be separated from the powder. But the latter is just as likely to contain more of the active ingredient than the granules.

The third process mentioned by the author as superior to either is the following: Heat the ingredients quickly, with manipulation, until the mass becomes pasty. Lift up the pasty portion, at intervals of a few seconds, to the top, so as to allow all the powder to come into contact with the bottom of the granulating tin used. Then press it through a wire sieve of a convenient sized mesh. Receive the granules on white paper, and dry them in a warm room on suitable trays. The heat must be properly regulated so as to avoid too great a loss of carbonic acid, which would render the product deficient in effervescence. —After *Pharm. Journ.*

Further Notes on Azoimid.

WE have already given some account of the remarkable new compound of nitrogen and hydrogen which has recently been discovered, viz., N_3H, an acid designated as azoimid, or nitrohydric acid [as appears to us, the most suitable translation of the German "Stickstoffwasserstoffsäure"]. The discoverers, T. Curtius and R. Radenhausen, have recently succeeded in preparing the substance in a pure state. While its exceedingly powerful explosive property was already known from the study of its more dilute aqueous solution, the danger of handling the substance in its pure state, even in very small quantities, is so great that the discoverers hasten to warn others against experimenting with it.

Azoimid, when pure, is a mobile liquid, colorless like water, and boiling without decomposition at 37° C. It is miscible with water and alcohol, and possesses a most powerful, almost insupportable odor. It explodes when it comes in contact with a heated body, often also without any known cause. *The explosion is without parallel in violence*, and is accompanied by a brilliant blue light. It was prepared by the authors by subjecting the aqueous acid to fractional distillation.

On introducing 0.05 Gm. (about seven-eighths of a grain) into a tube over mercury and evacuating the air, the resulting explosion reduced the whole apparatus to dust and scattered the mercury in the most minute, impalpable particles even into the most remote parts of the large workroom. And once, on removing a little vial containing 0.7 Gm. (about 11 grains) of azoimid from a freezing mixture, the substance exploded, producing such a pressure of air that all glass vessels in the neighborhood were completely demolished, and one of the operators (Mr. Radenhausen) received serious injuries.—After *Zeitsch. f. prakt. Chem.*, 189, 207.

Nickel-in-the-Slot Portraits.

DAGUERRE would turn over in his coffin if he knew the latest development of the art of which he is the patron saint. Photography, after many vicissitudes, has finally reached the nickel-in-the-slot point of excellence, and an association, styling itself the Automatic Phototype Company of New York and New Jersey, is engaged in the business of constructing machines that will enable every one to take his own portrait for the small consideration of five cents, and in the brief period of three minutes. These machines, larger than the automatic penny-in-the slot weighing devices, are to be placed in ferry-houses, railroad stations, hotel corridors, and other public resorts where people are accustomed to waste valuable time, and it is believed that the company, whose paid-up capital is $300,000, will make some money out of them.

The portraits are not imperial or cabinet photographs, but are very fair tin-types, 1⅛ by 1⅜ inches, and the operation of taking them is exceedingly simple, consisting of sitting in front of the camera, dropping in a nickel, and turning a crank. In three minutes the picture is delivered.

The interior of the machine is a marvel of ingenuity, the progress of the plate being accompanied by mechanical movements that almost put in the shade the human hand. The metal fingers seem to think as they remove the little piece of tin from vat to vat, from bath to bath, keeping it five seconds in one, ten in another, twenty in a third, and so on, till it is ready for delivery. Edmund G. Fisher is the inventor, but he is prouder of the new developer he has discovered than of the machine itself, because the developer made the machine a possibility.

The officers of the Automatic Phototype Company are: President, Chandos Fulton; Vice-President, Louis Runkel; Secretary, William J. Lippman; Treasurer, Berthold Nathan.

American Druggist

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INFORMATION WANTED.

OUR *readers will confer a favor by answering any of the following questions and referring to them by number. We will undertake to forward the answers to inquiries when the request for information is accompanied with a directed envelope and postage. The names of the respondents (unless otherwise indicated) will be published in the next issue of the journal.*

ANSWERS.

No. 2,501.—**Improved Process of Manufacturing Potassium Cyanide.** Mr. L. J. Millard, of London, Eng., kindly informs us that the address of Mr. H. N. Warren, the author of the paper referred to, is 18 Albion St., Everton, Liverpool, Eng.

No. 2,502.—**To Remove Tattooing.** Mr. T. W. Dodd, of Walsingham, England, writes as follows in the *Chemist and Druggist*, issue of December 13th last:

"Twenty years ago I removed three very indelible tattoo marks on my hand. Certainly it left a scar, but now it is scarcely perceptible. The operation was performed by applying nitric acid with the stopper of the bottle (a better instrument would be a glass rod pointed, to carry the acid), just sufficient to cover the stain, so as to avoid making a larger scar than needful, the acid to remain about one and a half minutes, until the *cutis vera* was penetrated and a crusted appearance shown, then washed off with clean cold water. In a few days after this treatment a scab forms, which contains the tattoo mark or stain; remove it, and should inflammation supervene, poultice and bathe with warm water. In this way the skin with the stain is not only removed almost painlessly (I mean tattoo marks about the size of peas), but the nitric acid at the same time to a certain extent seems to decolorize the stain. Of course large tattoo marks, greatly extending over the surface, must necessitate the operation being performed differently.

Trusting the above will be of use to your correspondent, I remain, Yours truly,

L. A. HOERNER,
Three Rivers, Canada.

[Dr. Variot, of the Paris Biological Society, advises the following method (see AMER. DRUGGIST, 1889, p. 25): Tattoo the skin, in the usual way, with a concentrated solution of tannin, following the original design. Then apply a crayon of nitrate of silver until the part tattooed with the tannin blackens. Wipe off excess of moisture and allow matters to take their own course. Slight pain continues for two to four days, and after two months the cicatrix which results will almost disappear.—ED.]

Nos. 2,503 and 2,507*a*.—**Wine Mitchella, comp.** Compound fluid ext. squaw vine [*Mitchella repens*?], alcohol, āā f ʒ i.; sugar, ℥ i.; sherry wine, q. s. to make Oi. Dose, one teaspoonful.

No. 2,507*b*.—**Syrup White Pine, comp.** Compound fluid extract of white pine, f ʒ iv.; syrup, f ʒ xij.

M. B. STANTON,
Sheridan, Mich.

[The composition of these two compound fluid extracts being unknown, leaves something still unanswered. See below.—ED.]

No. 2,509.—**Liquid Slating without Alcohol.** Lamp black, 1 oz.; pumice stone (powd.), 4 oz.; linseed oil (boiled), 8 oz.; spirit of turpentine, enough to make 2 pints. Mix.

E. J. KENNEDY, Detroit, Mich.

No. 2,510.—**Bulow's Tablet Machines** can be supplied by me. There are two sizes. Price £10 and £17. Like No. 2,512, I have not succeeded in drawing a reply from J. M. Richter, of Gratz.

F. FOSTER,
29e St. Nicholas St.,
Scarborough, Eng.

QUERIES.

2,514.—"Can you give us any information as to how we may use ordinary paste to stick lithographed labels to tin? We think you may be able to inform us of some ingredient which, if compounded with paste, will make adhesion perfect."

2,515.—**Compound Fluid Extract of Squaw Vine.** Formula wanted.

2,516.—**Compound Fluid Extract of White Pine.** Formula wanted.

2,517.—Dr. Doremus' method for **Softening Hard Water,** without the aid of caustic soda, for laundry purposes. [Ans. by Editor.]

2,518.—Please give me the etymological signification of "prunella" as found in the title Sal Prunella. Give me its root or primitive derivation, definition, and subsequent combination as used in the title named, etc.

2,519.—**Ely's Cream Balsam.**

2,520.—**Dr. King's New Discovery for Rheumatism.**

2,521.—**Gombault's Caustic Balsam.**

2,522.—**Sanford's Liver Invigorator.**

2,523.—**Ayer's Cherry Pectoral.**

2,524.—**Syrup Figs** (California Co.)

All Watches are Compasses.

A FEW days ago I was standing by an American gentleman, when I expressed a wish to know which point was north. He at once pulled out his watch, looked at it, and pointed to the north. I asked him whether he had a compass attached to his watch. "All watches," he replied, "are compasses." Then he explained to me how this was. Point the hour hand to the sun, and the south is exactly half-way between the hour and the figure XII on the watch. For instance, suppose that it is four o'clock. Point the hand indicating four to the sun, and II on the watch is exactly south. Suppose that it is eight o'clock, point the hand indicating eight to the sun, and the figure X on the watch is due south. My American friend was quite surprised that I did not know this. Thinking that very possibly I was ignorant of a thing every one else knew, and happening to meet Mr. Stanley, I asked that eminent traveller whether he was aware of this simple mode of discovering the points of the compass. He said that he had never heard of it. I presume, therefore, that the world is in the same state of ignorance. Amalfi is proud of having been the home of the inventor of the compass. I do not know what town boasts of my American friend as a citizen.—*London Truth.*

NEWS FROM THE TRADE.

NOTES FROM ENGLAND.

[FROM OUR OWN CORRESPONDENT.]

LONDON, March 10th, 1891.

THE proposed proprietary rebate plan suggested by the joint conference committee under Mr. M. N. Kline has attracted some attention here, and the question whether the retail trade will seriously take the matter has been variously discussed. At first sight the method appears a very cumbersome one wherewith to gain protection from the inevitable "cutter." Moreover, experience here with rebate systems is not encouraging, as they are usually unsatisfactory from the length of time before rebate payment is obtained, thus causing some locking-up of capital. In the case of rebate of alcohol duty allowed by the revenue here upon tinctures exported under regulations, it is usually two or three months before payment is effected, and, as the amount is often several hundred dollars on each consignment, it is of some importance to the wholesaler. One point, however, in connection with the scheme deserves special admiration, and that is the spirit of unanimity that prevails amongst manufacturers, jobbers, and leading retailers alike.

In England we have only two serious attempts to meet the great difficulty. These are by the proprietors of a popular embrocation, Messrs. Elliman, Sons & Co., of Slough, and the proprietors of "Moonseed Bitters," Messrs. Powell & Co., of Swindon.

The plan adopted in each case is practically the same. The wholesale houses supplying retail chemists or stores are compelled to obtain from their customers signed agreements not to retail under the advertised prices to any person whatever, whilst it also necessitates the keeping of a register by the wholesaler of all chemists who have signed the agreement. The latter provision is, perhaps, the principal drawback to the method, as it naturally entails extra work on the wholesalers without any commensurate benefit.

Whether it works well or not in practice it is difficult to determine accurately. The proprietors in question profess to be quite satisfied, but as occasionally rewards are offered by public advertisement of $25 to any person giving them information as to the sources of supply of certain "cutters," it evidently must be now and then surreptitiously broken.

One thing is certain: if the plan is ever to be extended and the trade in proprietary articles adequately protected, there will have to be more unanimity here between proprietors themselves. Unfortunately there is no such thing as a society, association, or union of manufacturers in the proper sense of the term. It is true there is an occasional meeting of the principal wholesale druggists, who discuss matters affecting their own immediate interests, but it is only a nominal association and by no means representative.

Although the above is the only recognized plan adopted for meeting "cutters," it should be stated that many firms discountenance cutting by every means in their power. Some wholesale houses refuse to supply the stores direct, so compelling them to pay a slightly higher price for their goods. Others adopt the plan of sending a traveller down to a town where extreme cutting has been rife, and it is wonderful how in a short time it is possible to convince the majority of chemists that it is better policy to maintain rather than cut rates.

In a recent paper read before the Manchester section of the Society of Chemical Industry, Dr. B. W. Gerland drew attention to the value of thymol as a preservative of standard solutions prone to decompose on keeping. Those who have much volumetric work will be glad to hear that a crystal of thymol placed in the standard normal or decinormal solution of oxalic acid preserved it completely for over two years. In the same way the author states that permanganate of potassium solution may be preserved, and in each case no effect on the usual titration is produced.

Euonymin of American manufacture was supposed to take a back seat when our Pharmacopœia Committee was known to be working on the subject. The result, which is detailed in the British Pharmacopœia additions under the title of Dry Extract of Euonymus, can hardly be considered satisfactory, and will not compare for a moment with the fine powder sent out by Parke, Davis & Co., Schieffelin & Co., and other well-known houses.

The British Pharmacopœia method may be briefly described as exhausting the powdered root with a mixture of equal parts of rectified spirit (56 O. P.) and water, distilling off the spirit, and evaporating the extract with the addition of 20 per cent of sugar-of-milk. The final product, containing only 80 per cent of extractive, was of a dirty brown color, very hygroscopic, but with a pure bitter taste. The average yield from good samples of euonymus was 3¼ to 3½ ounces extract from a pound. But the principal objection has been pointed out by a critic in the *British and Colonial Druggist*, viz., that it will not retain its pulverulent form even in a stoppered bottle. It is very probable that if the process had been carried out entirely as recommended by Mr. W. A. H. Naylor, F.C.S., chemist to Messrs. Hearon, Squire & Francis, by first percolating with water to remove gummy matter, this grave objection would have been surmounted.

It is generally believed here that the new edition of the United States Pharmacopœia will contain methods of standardizing at least nux vomica and its preparations, and perhaps those of aconite, henbane, and belladonna. Already some work is in progress on the last three in this country, but the initial difficulty has to be solved--whether it is better to assay the drug itself, from which the extract, tincture, and other galenicals could be made of definite strength, or whether an extract of assayed strength (such as the British Pharmacopœia extract of nux vomica containing 15 per cent of alkaloids) should be the basis of other preparations. The action of the representative United States Pharmacopœia Convention in the matter will be awaited with interest.

A dull market, both in chemicals and drugs, has ruled during the last month. Demands have been very limited, and values have consequently declined. Sulphate of copper is neglected in spite of the publication of figures showing that stocks are only half as large as this time last year. Iodine is carefully maintained at syndicate prices, and there is no improvement in mercurials. Quinine is depressed; it is doubtful if bottom price is reached even now, as there are very few buyers. The cinchona sales last week were not encouraging; 2,500 bales of Indian and Ceylon barks were offered, and only 1,620 changed hands. Prices were fractionally lower, but the unit remains at 2¼ cents. Opium was in tolerable demand, and some transactions were done for early delivery. Ipecacuanha is firmly maintained; it is said the "ring" are determined to obtain even higher prices. Oils are quiet and shellac remains unaltered.

The following are current prices:

Acid, carbolic	per lb.,	$0.16	Oil, castor	per lb.,	$0.08
citric	"	.42	cotton	per cwt.,	4.40
oxalic	"	.07	linseed	"	5.25
tartaric	"	.31	olive	"	8.20
Bleaching powd.	per cwt.,	1.60	turpentine	"	7.00
Camphor, crude	per lb.,	.34	petroleum	per gal.,	.11
refined	"	41	Peppermint HG.,	per lb.,	3.48
Cinchona, Ceylon,	"	.09–.15	Opium	"	2.06
E. Indian	"	.10	Potash, bichrom.	per lb.,	.07¼
Java	"	.12	chlorate	"	.11
S. America	"	.14	nitrate	per cwt.,	4.45
Copper sulphate	per cwt.,	4.02	Quinine, Ang.	per oz.,	.26
Cream of tartar	per lb.,	.20	Germ	"	.21
Ergot	"	.28	Shellac, TN	per cwt.,	20.10
Iodine	per oz.,	.18	garnet	"	19.70
Jalap	per lb.,	.40	button	"	21.80
Mercury	"	.48	Soda, caustic, 70°	"	2.75
Calomel	"	.80	crystal	"	.76
Corrosive sub.	"	.64	bicarbonate	"	1.70
Pimento	"	.06	Stick-lac	per cwt.,	16.40–17.70

* * *

THE thirteenth annual meeting of the **Ohio State Pharmaceutical Association** will be held in Dayton, Ohio, June 9th, 10th, and 11th, 1891. All communications in reference to the exhibition of drugs, chemicals, etc., should be addressed to the local secretary, Mr. J. G. Spengler, 2d and Webster streets, Dayton.

LEWIS C. HOPP,
CLEVELAND, O. Permanent Secretary.

MICHIGAN.

FOWLERVILLE was visited with a most destructive conflagration last week, most of the drug stores being wiped out. Messrs. Cooper & Osborne, J. P. Spencer, and J. L. Cooper lost everything, A. M. Gardner's store being the only pharmacy which escaped total destruction.

The bill to permit physicians and surgeons to register as first-class pharmacists has been favorably reported upon by the bright-witted committee of enlightened hayseeds to whom it was referred. It will now be in order to introduce a bill entitling registered pharmacists to practise medicine. What a howl would go up from the exponents of ethical medicine were this to be actually proposed! And yet the one proposition is no more absurd than the other.

At the last meeting of the State Board of Pharmacy, held at Grand Rapids, ninety-three applicants were examined. Twenty-four were given the certificate of first-class pharmacists, forty-five that of assistant pharmacists, and the remaining twenty-four failed entirely.

Following are the names of those who were successful: *First class Pharmacists.*—Wm. C. Babcock, of Britton; Fred. H. Dorradale, Ann Arbor; A. Clement Davis, Grand Ledge; George C. Fenton, Bailey; Frank M. Fisk, Edwardsburg; Enos Golden, Fenton; Andrew J. Goodwin and Frank L. Hayes, Detroit; Archie W. Herrick, St. Louis; Mort F. Miller, Cadillac; Wm. Mortimer, Yale; Wallace E. Newark, Brookfield; Albert A. Patterson, Samuel R. Smith, and Alvah P. Scriver, Grand Rapids; Edwin H. Pierce, Allegan; George Ramsell, Red Jacket; Charles S. Rannels, Vermontville; Miles E. Riggs, Cheboygan; Hiram W. Schall, Three Rivers; Richard A. Servis, Pentwater; Albert F. Lamb, Forrest M. Weber, Detroit; Fred. S. Tuxburg, Hart.

Assistant Pharmacists—Henry W. Andrews, Adrian; Lucien M. Beal, Richland; Wm. R. Bacon, Sault Ste. Marie; Myron E. Bidwell, Dowagiac; Henry J. Connell and Wm. S. Day, Belding; Cornelius de Jonge, Zeeland; Ernest L. Erb, Coopersville; Byron E. Foley, Lakeview; Hart P. French, Mulliken; Wm. L. Holland, St. Joseph; Curtiss E. Humphrey, Holly; George A. Johnson, Boyne City; Freeman R. Jones, Muskegon; Theodore Karmsen, Greenville; Richard E. Kincaid, Hersey; Addison L. Kirtland, Lakeview; Wm. F. Knabb, Monroe; Julius F. Kaeding, Fred. A. Sweet, Frank Lane, and George van Nostitz, Detroit; Oliver B. Leonard, Wm. Darth, Vinton J. Rickert, Henry Richell, Benjamin O'Bosma, Lewis E. Chappell, Albert Coe, and Henry W. Fox, Grand Rapids; John W. Loppenheim, Ludington; Newell McDonald, St. Johns; John J. Master, Lansing; John Mastenbrock, Muskegon; Wm. Molloy, Minden City; Omar A. Nichols, Battle Creek; Artemus A. Perry, Dowagiac; Moses E. Rensch, Ionia; Charles A. Robertson, Coopersville; Zimmerman Ross, Marlette; Cornelius N. Ware, Colon; Fred. Weinman, Lansing; Claude White, Lakeview; Charles T. Eckerman, Muskegon; Henry Riesinger, Cedar Springs.

The Detroit College of Physicians and Surgeons recently gave the first of their series of monthly reunions, followed by a supper at the Hotel Cadillac. The new officers are: President, W. A. Polglaise; vice-president, J. M. Griffin; recorder and treasurer, Harold Wilson; corresponding secretary, V. T. Smith; curator, R. E. Gustin; member Board of Control, T. P. Wilson; delegate to Michigan State Homœopathic Society, Mary A. Willard; delegate to Ohio State Homœopathic Society, T. P. Wilson; delegate to American Institute of Homœopathy, J. M. Griffin.

When a well-known pharmacist failed last year, he owed a certain coal dealer $5. To recompense himself for the loss of the interest on the account, the latter gave the druggist a thrashing. The druggist now has a store on Trumbull avenue, and last Thursday the coal dealer came in and noisily demanded payment of the old bill. Pharmaceuticus seemed glad that an opportunity had arrived for him to discharge his obligation, and told his creditor to wait until he could make out a receipt. In a moment he emerged from behind his prescription counter with the "receipt" in the shape of a revolver, and then had the vender of fuel arrested for creating a disturbance in the store. The next morning the latter was released under suspended sentence at the police court, still hankering after his long-lost "V."

The deplorable results which ensue when partisan politicians are allowed to interfere in medical matters, were strongly shown in a recent disgraceful occurrence at Grand Rapids. Two city prisoners in the Kent County Jail were taken sick and the county physician sent for. He refused to attend the cases on learning they were city prisoners, and the city physician was called. He also refused, on the ground that it was the duty of the county physician to attend all prisoners at the jail. The jail officials finally, becoming exasperated, sent for an outside physician, who consented to prescribe for the men, but would not furnish medicine. The turnkey telephoned the sheriff, who referred him to the chief of police. The latter refused to have the prescriptions filled, saying that, although they were city prisoners, the sheriff was responsible. The patients were finally locked in their cells without any medicine at all. The next morning the sheriff had the prescriptions filled, and paid for them out of his own pocket rather than see the prisoners suffer any longer. The whole affair is owing to a squabble in the board of supervisors over the bills presented by the county physician.

One of the causes which tend to bring the druggist into disrepute, and make the public look upon him as a vulture that profits through the misfortunes of humanity in general, is the fact that quacks and charlatans invariably refer to him as a creature of soulless greed, whom it is necessary to avoid on any and every occasion. One of this class of advertising philanthropists is at present afflicting the otherwise placid City of the Straits, in the person of "Dr. Frank Smith." According to his advertisements, he is "endowed with a strange and mysterious gift to heal disease," and, what is still more remarkable, "cures all female complaints without the use of instruments or exposure of the person." At one of his séances, which the DRUGGIST'S correspondent attended, his exhibition of the strange and mysterious gift was truly wonderful. His first subject was an unfortunate being whom the doctors had given up to die with Bright's disease. Dr. Smith first grabbed both his hands and sat for a few moments intently looking at him with a yearning, ten-dollar gaze in his clear blue eye. Then, after giving the patient several sharp blows in the pit of the stomach, thus rendering him speechless, he kneaded the small of his back with great vigor, and assured him he was quite well, emphasizing his assurance with a muscular push which sent the tottering subject across the stage on a trot, where the doctor's assistant, with a similar assurance and emphasis, whirled him around and sent him back. The doctor then informed the audience that the patient's urine was probably free from albumin. The next subject was a large, heavy man who had been troubled ever since the close of the war with rheumatism. He walked with difficulty, and his disease was evidently genuine. The doctor gave him a treatment, told him he was cured, and ordered him to bend over and touch the floor. The man obeyed, but apparently with great pain, and then remarked rather dubiously that he "thought he felt better." "Of course you feel better," said the doctor. "Certainly he does," chimed in his assistant, who, turning to the audience, said: "The man is now cured, ladies and gentlemen. After suffering terrible agony for over twenty years, Dr. Smith has made him well in one minute. Think of it!" The audience thought of it, while the patient hobbled off the stage, and the assistant declared "he walked like a young man of twenty." Numerous other sufferers were "cured," including cases of lumbago; locomotor ataxy combined with deafness; a lady who had had a "pain from birth," the location of which she refused to disclose from motives of modesty; a colored gentleman afflicted with constitutional insufficiency; an old man who had suffered with an ache in his groin for forty years, along with obstinate constipation, and several others. The old man said he was cured, but it is to be regretted that he did not offer some convincing evidence that his obstinate constipation had been overcome.

The doctor's method of curing deafness furnishes a typical illustration of his powers of "magnetism." It consists of inserting one finger of each hand in the patient's ears, and withdrawing them suddenly with a loud snap like the report of a toy pistol. The patient stands it as long as he can, and then declares he can hear as well as ever—probably because he fears the result of such continued application of this powerful remedy, "animal magnetism." Several of those who had been treated were positive they could feel currents of electricity running up their arms whenever the doctor held them by the hands. An effort was made to see the doctor's first case, the chronic nephritic who had been so heroically dealt with, but he was nowhere to be found. He had escaped unnoticed, taking his precious de-albuminated urine with him.

The committee appointed to investigate the dissecting-room outrage at the Michigan College of Medicine and Surgery, which was the cause of Dr. Mulheron leaving the institution, has submitted its report. It says the evidence obtained seems to exonerate the students charged with the affair, and, further, that the committee has been unable to locate the perpetrators of the deed. One night, about Christmas time, the corpse of a woman lying in the dissecting room was mutilated and cut to pieces, the head and extremities being scattered around the premises and on the street. Dr. Mulheron suspected certain students, and the next day questioned them before the rest of the class as to their whereabouts the previous evening. This method of procedure was objected to by the other members of the faculty, and in consequence Dr. Mulheron tendered his resignation.

A "well-known physician," who modestly refrains from giving his name, however, has been telling the reporter of an evening paper how the laws are being flagrantly violated by the druggists of Detroit. After quoting at length from Howell's Annotated Statutes, he goes on to say: "The law is all right, but I doubt very much whether it is lived up to by the pharmacists or enforced by the State. It would be a good thing to insist that where such cases are discovered by the coroner he be specially delegated to prosecute druggists under the State law. It was recently shown that druggists in this city sold liquor illegally, and I believe they are guilty of the same offence in regard to poisons." Charity does not always begin at home, but there are a great many times when it *ought* to.

A bill has been introduced in the House calling for an appropriation of $10,000 for the establishment and maintenance of a homœopathic school of medicine upon the grounds of St. Luke's Hospital at Detroit. If the measure is passed, it is expected that it will ultimately lead to the removal of the present homœopathic school from Ann Arbor.

The Botanical Department of the Agricultural College has issued Bulletin No. 72, which contains descriptions of, and remedies for, six of our most troublesome weeds: Canada thistle, red root, moth mullein, toad flax, rib grass, and narrow dock. A novel and useful feature of the bulletin is that samples of the seeds of the various plants are glued on the pages, thus furnishing the farmer with a sure means of identifying the weeds. These bulletins are of great value to all engaged in agriculture, and are becoming daily more appreciated, as shown by the fact that the demand for them has almost doubled during the last year.

Dr. William Bell, of Smyrna, Ionia County, has drawn up a bill, which is now being considered by the House at Lansing, in which he proposes to abolish the medical department at the University altogether. Representative Hawley, of Ionia, introduced the curio, and speaks thusly regarding it: "Dr. Bell belongs to the eclectic school, and believes that all medical schools should be on an equality and given an equal chance at the University. I fully agree with him, and in many respects I think the measure I have fathered is a just one."

The Provincial Board of Health of Ontario has memorialized the Michigan Legislature, deprecating the proposed abolition of the State Board of Health, and pointing out that the absence of such a board would force the neighboring States and Provinces, in the event of an outbreak of the more serious diseases, to take measures for their own protection which could not fail to affect injuriously the property and commercial interests of the State. It is to be hoped this merited rebuke will have the effect of bringing our knavish demagogues back to their senses.

A free dispensary has been opened on the corner of Michigan avenue and Wayne street. It is called "The Detroit Medical and Surgical Free Dispensary," and is open for an hour or two in the middle of the day. The physicians in attendance are Drs. Hislop, Finlayson, Collins, J. Owen, Crawford, and Newell. Local druggists do not look upon the establishment of free dispensaries in the light of an unmixed blessing, though doubtless when their services are confined to the deserving poor they are praiseworthy in the highest degree.

J. B. Ford & Son, the extensive plate-glass makers of Pittsburg, have about completed negotiations for the erection of a large soda-ash manufactory at South Detroit. Their salt well is finished, and on analysis they find the salt free from gypsum and well adapted to their purpose. They do not intend to make glass, on account of the high cost of natural gas, which is piped, from Toledo, but inside of a year expect to give employment to 800 men.

The Berrien Springs Dispensary Co. is the name of a new concern incorporated last month. It is located in Berrien Springs, and has a capital of $50,000.

E. Heineman, of the Merz Capsule Co., has patented an improved form of gelatin capsule.

D. O. Haynes will hereafter combine the fascinating pursuit of pharmaceutical journalism with the prosaic but profitable duties of a bloated capitalist. He is one of the incorporators of the Detroit Tricycle Coach Company, Limited, and holds the office of treasurer. For that tired feeling he takes Hood's Sarsaparilla.

Prof. A. A. Clark, who died at Aiken, S. C., where he had gone for his health, was corresponding clerk of the State Board of Health, and the author of numerous papers on scientific subjects, especially those relating to sanitation. Two years ago he was offered the chair of English Literature at the Agricultural College, but refused it. He had just completed a novel dealing with economic questions at the time of his death, which will shortly be published.

The wife of Alderman James Vernor, the druggist, died of consumption on the 16th inst. The Detroit Pharmaceutical Society held a special meeting and unanimously adopted resolutions expressive of their sorrow and sympathy.

Jack Koch, proprietor of a brewery in Manchester, claims to be a cousin of the famous Dr. Robert Koch. Robert has not yet been heard from.

Farrand, Williams & Clark brought suit against Druggist Appleyard for $1,000. When the case came up for trial, however, it was announced that matters had been amicably adjusted, and the suit was therefore discontinued.

G. C. Ray, the First Ward druggist of West Bay City, mourns the loss of his father, William N. Ray, who died February 18th, after a prolonged illness of several months.

Some kindly disposed individual ought to present the advertising manager of Carter's Liver Pills with a copy of "English as she is wrote." Scarlet signs, with letters of white, everywhere inform the depraved victim of the constipation habit that

Carter's Little Liver Pills
cures
Sick Headache.

* * *

The twenty-first annual meeting of the **New Jersey Pharmaceutical Association** will be held in Masonic Temple, Trenton, on Wednesday and Thursday, May 27th and 28th, 1891. Mr. George T. Fitzgeorge is the local secretary, to whom all correspondence in reference to space for exhibits, etc., should be addressed.

Bridgeton, N. J., March 17th, 1891.
Chas. F. Dare, Secretary.

MISSOURI

Kansas City.

Dr. Cockle is in the city from Hampton, Mo.

Mr. Pence, of Kearney, Mo., was with us on the 1st.

Mr. Sheets, of Smith & Sheets, Orrick, Mo., has paid us a visit.

H. F. Heller, of Burlington, made us a business call. He is doing a big business.

J. R. Spencer, Lee's Summit, Mo., made Kansas City a hurried visit on the 1st.

A. Robertson, of McGrecen, Kan., was the guest of the wholesale trade this week and made many purchases.

C. S. Cravens, the local secretary of the Missouri Pharmaceutical Association, was over from Excelsior Springs for a few days this week.

F. C. Fritsche came down from Leavenworth a few days since, and was met by many old friends, and made many new ones.

G. A. Dawes was in the city last week on business. He owns a capacious store at Peculiar, Mo.

J. W. Bryant owns one of the flourishing drug stores of Ness City, Kan. He paid our city a visit this month and added to his stock in trade.

P. S. Allen and **J. N. Barnes**, both of Liberty, Mo., have visited the city since the last issue of the **American Druggist**. They know where to come for new goods.

L. H. Ellen, of Thayer, Mo., purchased goods in our city this month. Says business is opening again in his part of the State, and predicts a busy season this spring.

Mr. Saulbern, who has been retired from the drug business for some time, has again returned to his first love, and now owns one of the handsomest drug stores in Westport.

Claude Love, the enterprising druggist of Westport, has received an appointment as postmaster of that city. Mr. Love removed from Belton, Mo., to Westport some eighteen months ago.

Our congratulations go to **A. E. Kraum**, of Emporia, Kan. For years he has been a trusted clerk for Mr. Benj. Wheldon, but resigned on March 1st, and will soon be proprietor of a store in that city. He bought his outfit from Meyer Bros'. Drug Co.

Mr. J. H. Bernard, of Ness City, Kan., was in the metropolis this week, adding to his already large stock of drugs by new purchases. He is one druggist at least who says "times are not dull."

Ernest Gillam, class of '89, is at Buffalo, Wyoming. Thanks to the wide circulation of the **American Druggist**, through which our alumni found him. Later: A letter just received giving the address of Samuel G. Berry as Tecumseh, Neb. Doubly thanks.

Geo. H. Hashinger, class '89, Kansas City College of Pharmacy, was married Wednesday, March 11th, at 2 P.M., to Miss Clara Jackson. The wedding took place at the residence of the bride's parents, Prospect and Rochester streets. The best wishes of the **American Druggist** are with the happy couple.

One of our most prominent druggists is under a deep suspicion that a valuable mineral spring has been discovered on his property south of the city. Prof. Claude C. Hamilton is investigating the character of the water, and says that a preliminary examination shows iron and magnesium sulphate abundantly. A quantitative analysis will be made, when, if gratifying, the name of the fortunate pharmacist will come to light.

Many of our suburban druggists are receiving a nice little income from putting up the ingredients according to a formula sold by an industrious street peddler who is making the rounds of the city. This formula the gentleman warrants to make a soap that *contains neither lye nor grease!* The formula he sells is as follows: Sal soda, 1 pound; ammonium carbonate, 1 pound; and one bar of Lennox soap. Your correspondent is indebted to Mr. Harvey Maloney for the recipe.

The contest for the prizes in practical chemistry of the Kansas City College of Pharmacy was held in the chemical laboratory Friday evening, March 6th. The seniors were given potassium iodide, potassium chloride, and sodium bicarbonate to test for adulterations; the juniors were given lead nitrate, calcium hypochlorite, and barium chloride as "unknowns," and were required to give the chemical name, chemical formula, common name, and the official (Latin) name if official. The senior contestants were Edward M. Vanderpool, Otto W. Lowe, J. H. Miller, Miss Susie Halzinger, Harvey J. Maloney, E. R. Wichman, and Robert C. Cannon. The juniors were Joe L. Sewell, Frank A. Lowe, Miss Lottie Moses, Peter Buchert, Frank E. Bryant, James W. Hardacre. In the senior contest, Messrs. Vanderpool and Wichman were equal on the highest grades, and in the junior Messrs. Lowe, Buchert, and Hardacre were tied on highest grades, when Messrs. Buchert and Hardacre withdrew in favor of Mr. Lowe. So the junior prize in chemical laboratory goes to Mr. Frank A. Lowe, while Mr. Vanderpool and Mr. Wichman must contest again for the senior prize. The examination was conducted by Prof. Claude C. Hamilton, the demonstrator of chemistry. The professor has a unique way of grading the students, by which every candidate sums up his own grades in the presence of the other contestants.

St. Louis.

The amended Missouri pharmacy bill has passed the House and will no doubt be through the Senate before this is in print. This is good news to all true friends of pharmaceutical progress.

If the new order of things in pharmacy laws is carried out the Board will be increased in size from three to five members. We hope it will be proportionally enhanced in value.

The passage of a pharmacy law in Arkansas has a good effect on the trade in this State, and all are glad to see it. Indiana is the next State to make the step forward.

It is queer, but nevertheless true, that the St. Louis College of Pharmacy is given credit for the effort to pass pharmacy laws in Indiana and Arkansas. This was held out by the opposers of the bills, who claimed that the College was trying to force druggists to attend it. It is needless to state the College authorities took no part in the work outside of Missouri, and even at home no official action was taken by the College. But here in Missouri no one even intimates that the pharmacy law is a College scheme.

At the recent annual meeting (sixteenth) of the Alumni Association of the St. Louis College of Pharmacy, the president, Dr. H. M. Whelpley, made a number of suggestions in his annual report calculated to promote the interests of the Association, such as: a bulletin board in the college for Association intelligence; a framed blank certificate of membership; a standing committee of five members to confer with students; the advocacy of a national organization of alumni associations; the making it the duty of the president to present the alumni prizes at the annual commencement exercises of the college; the contribution of $50 to the fund for purchasing a site for the new college building; the publication of a list of members in the college prospectus, and calling upon non-resident members to contribute papers and suggestions to be offered at the annual meetings.

The recording secretary, J. C. Falk, reported that the addition of twenty-three new members had increased the number to one hundred and thirty-three. The lectures by alumni to the students had been well appreciated, and notices of them had been sent to other alumni. The effort to raise an alumni fund to aid the college in the purchase of a building site is meeting with success.

Treasurer C. Gietner reported a balance of over $200.

The following elections were made: President, Prof. Francis Hemm; first vice-president, Dr. F. A. Temm; second vice-president, Henry J. Tritschler; recording secretary, Dr. J. C. Falk; corresponding secretary, Hy. L. Goodman; treasurer, Charles Gietner; registrar, O. F. Heitmeyer; members of the Executive Board to serve three years, Dr. H. M. Whelpley and J. W. Tomfohrde.

The Committee on Prizes reported a gold medal, to be presented to the best student in the graduating class, and as having selected G. H. J. Andreas to deliver the alumni prizes at the graduating exercises.

Wm. C. Bolm resigned as a member of the Executive Board. C. M. Nicholson was elected to fill the vacancy.

The alumni fund will be turned over to the college as soon as the money is called for, accompanied by a list of donors.

Benj. Otto has an eye for the beautiful, even if he is not married, and his store, corner of Morgan and 28th streets, is one of the neatest in the city. Among other artistic things he has some fine white enamel letter window signs; but they do not look as fine as they once did, for a sneak thief carried off a few of them and left the signs in worse than phonetic spelling.

Mr. Bliesner is no longer with Temm on Franklin avenue. He does not believe in working in one place forever.

A. H. Klute lost $18 on a scamp who got him to cash a worthless check. Albert has had much experience in the ways of the world, and felt rather cheap over the affair, so much so that he spent considerable time and more good money to bring the fellow to justice as dispensed by the law. It will be some time before Albert is again caught asleep in his Easton avenue store.

New doctors have been matured by the half-dozen colleges of this city in greater profusion than ever before. One institution accepts a course in pharmacy as equivalent to one year in medicine, and thus turns out doctors after one year of study. At least a score of druggists are among the recent graduates of the various colleges.

Small-pox is in the city, and the City Hospital is not a good place to visit just at present. Fourteen cases have occurred in that institution.

F. W. Sennewald announces that the next meeting of the State Board of Pharmacy will be held at the Midland Hotel, Kansas City. He is secretary of the Board, and a hard worker for a retired pharmacist.

C. H. Chas. Klie says that he will go to New Orleans to attend the American Pharmaceutical Association meeting, and that he will go by river, even if he goes alone and is obliged to walk home. Whatever Klie says is to be depended upon.

Fred. Whitcomb, partner with M. W. Alexander, is off East for a few weeks' vacation. He has not been away for some time and the trip will do him good. Fred. is one of the most popular young druggists in the city.

M. W. Alexander gives his popular store a renovation quite often. The work this spring will be more extensive than usual and result in a great improvement in the convenience and appearance of the place. It is one of the very best retail stores in the place.

H. R. Luyties has removed his store from 28th street and Washington avenue to 218 Pine street. This is quite a change of location, and demonstrates that a homœopathic pharmacy cannot thrive in the West End. All of the other stores are down-town.

H. J. Meyer has withdrawn his active interest in the Meyer Brothers' Drug Co. He will give his time and attention to other commercial lines in which he is interested.

Soda-Fountain Men Combine.

An interesting trade combination was lately made public. A certificate of incorporation was filed in the office of the Secretary of State at Trenton, N. J., for the American Soda Fountain Company. The members of the company are John Matthews, of this city; James W. Tufts, of Boston; the A. D. Puffer & Sons Manufacturing Company, of Boston; and Charles Lippincott & Co., of Philadelphia. These are all old concerns. Mr. Matthews organized his business in 1832, Mr. Tufts in 1863, the Puffer Company in 1842, and the Lippincott Company in 1832. They control the business of the United States, Canada, and the West Indies. The capital stock is $3,750,000, of which 25,000 shares will be preferred. The value of property conveyed to the new company is stated to be $2,200,000, and the total sales by the individual companies during the four years preceding 1891 are rated at $10,152,151.66, with profits aggregating $419,402.39, equivalent to 17 per cent per annum

GEORGIA.

Atlanta, the progressive and wide-awake city, will have a full-fledged College of Pharmacy next season.

At the meeting of the stockholders of the new Citizens' Bank and Trust Co. of Thomasville, two well-known drug men who have left the ranks, J. W. Reid and J. T. Culpepper, were elected to fill important positions, Mr. Reid on the directory and Mr. Culpepper as cashier.

Mrs. Shuptrine, wife of one of Savannah's leading druggists, has just undergone a most painful and dangerous operation for abscess of the inner ear. Present symptoms indicate a successful operation.

Turner Bros., of Columbus, have secured the services of Waddell Rembert, who was with Mabbett & Jeeks, of Quitman.

W. C. Russell, of Fleetwood & Russell, Americus, has so far recovered from his three months' illness as to be up and at business again, much to the gratification of his numerous friends.

W. C. Fincher, late with Rowlinski's Pharmacy, in Savannah, owing to some misunderstanding has not yet gone into business for himself at Dalton, as recently announced, but expects to close the trade shortly.

Many inquiries have been made, and are being made daily, by our physicians for Koch's lymph, but so far only one in Georgia has succeeded in getting it. Our neighbors in Florida have been trying it, and with very favorable results.

J. T. Rockwell, of Brunswick, is very proud of his new store.

R. D. Grigg, late with William Berlin, of Washington, D. C., has been offered and accepted a position with J. T. Thornton, Savannah.

Americus is now investigating the crematory business, with the view of putting up a five-thousand-dollar establishment..

At the commencement exercises of the Woman's Medical College of Atlanta seven diplomas were granted and nine certificates for trained nurses. This is the first institution of the kind in the South, and the prospects for the future are very encouraging.

Dr. W. M. Byne, of Albany, recently graduated at Louisville, Ky., has been looking up the possibilities of Cordele as a location.

Chas. T. Higgins has been visiting in Brunswick, prospecting for a location for a large Southern soap factory.

Nearly $70,000 have already been subscribed for the new Grady Hospital in Atlanta.

The bill introduced before the last Legislature to prevent doctors and druggists from drinking did not get through. It was introduced by a physician, Dr. Baldwin, of Randolph, and proposed depriving them of the privilege of following their profession by taking away their licenses upon conviction of being intoxicated the second time.

CHICAGO.

A jury in Judge Baker's court has just rendered a verdict of considerable interest to Chicago druggists and to physicians in general. Some three years ago a physician was called to attend a three-months-old baby which was suffering from an abscess of the ear. One of the items in the prescription which the doctor wrote was Tinct. opii pulv. The medicine was dispensed by a well-known pharmacist, and administered to the child, which shortly afterward died. To settle the matter arbitration was resorted to, and the doctor was assessed $1,200. He refused, however, to abide by the decision, hence the suit. He claimed in defence that the clerk who put up the medicine knew that it was a mistake and should not have allowed its use. The jury awarded the father of the child $500. The doctor has appealed.

The Internal Revenue Department has commenced a raid on druggists who deal in cigars. It is claimed that the boxes, in addition to the internal revenue stamp, are provided with stamps similar to those used on boxes containing imported cigars. This is considered a violation of that section of the Revised Statutes which makes it a felony to use any stamp on cigar boxes in imitation of the custom-house stamps. A deputy collector visited the wholesale house of Fuller & Fuller Co. not long since, and seized 16,300 cigars. This firm has protested against the seizure, claiming that the stamps were merely guarantee labels.

The Illinois State Board of Pharmacy has instituted a form of practical examinations. They are conducted in Chicago by Messrs. Jamieson and Hogan, and can be taken by applicants at any time upon payment of fifteen dollars. Five dollars of this sum will be returned in case of failure. At present but a limited number can be accommodated, but as soon as arrangements can be made to furnish these examinations at the price designated by law (five dollars) all applicants for registration will be required to pass them. A general average of seventy-five per cent is required for a certificate as Licentiate in Pharmacy, and fifty per cent for one as Assistant Pharmacist.

Mr. Max Richter, 1800 Wabash avenue, died March 5th of Bright's disease. He had had possession of the store but a short time, having recently bought it of I. H. Fry, who took in exchange his old store on Cottage Grove avenue. It is understood that the business will be discontinued.

Buck & Rayner, who have been since the fire at 117 Clark street, are moving to their old store opposite the Court House. They thus secure a more desirable location and a reduction in rent of $2,000 a year.

Geo. F. Wisshack has just signed the lease for the store at the northwest corner of Washington and La Salle streets. It is understood that Mr. Wisshack will have to give up his present store at Madison and Halsted streets about May 1st, when he will move to his new quarters, which will compare favorably with any other store downtown. Mr. Wisshack is a thorough druggist, and united with his knowledge of the business he has that "push," so characteristic of Chicago merchants, which assures success.

Mr. T. W. Wrixon, of Evanston and Byron avenues, has recently sold his store to Charles Sutcliffe, city salesman for Fuller & Fuller Co. Mr. Sutcliffe will retain his position, and his brother Arthur will take charge of their new venture.

A. S. Cowan, of the Cowan-Bolmer Co., will shortly open a new store at Clark and Maple streets. Fred. C. Taylor, a druggist well known in that neighborhood, will be the manager.

Schreiber Bros., of South Evanston, have dissolved partnership, Theodore Schreiber continuing the business, while his brother has gone to San Diego, Cal., to reside.

Max Heydenreich sailed for Europe not long since, intending to remain the balance of the season. He recently sold his store on West Randolph street to Martin Freiner.

Messrs. Arthur Dawson, T. A. Cobb, J. W. Schofield, Peter Van Schaack, S. A. Humiston, and **R. H. Van Schaack**, representing the Chicago wholesale drug trade, accepted the hospitality of Parke, Davis & Co. last week, and made a tour of inspection through their laboratories. After a drive around the city and a visit to Windsor, Ont., they returned highly pleased with their trip.

It is rumored that a prominent druggist is negotiating for the store now occupied by the Rock Island Ticket Office, at the corner of Washington and Clark streets, in the Opera House building. An offer of $9,000 a year has been made.

A new corporation, the "Rosalie Drug Co.," has been formed to buy the store of Tonnar & Co. on Fifty-seventh street at South Park. Among the incorporators is J. R. Bennett, of Maris & Co.

A. F. Withe, at present prescription clerk at Buck & Rayner's Clark street store, will open a pharmacy under the Leland Hotel about May 1st. His fixtures will be of oak and in the finest style.

Another new store will be opened shortly at Polk and Loomis streets by W. P. Brennan.

Charles Kehler, for some years with Robert Stevenson & Co., has accepted a position as city salesman with Morrison, Plummer & Co.

J. M. Maris & Co. have discontinued their branch house here, and have moved back to Philadelphia.

LOUISVILLE.

The commencement exercises of the Louisville College of Pharmacy were held on the 6th of March in Macauley's Theatre. The salutatory address was by Mr. O. W. Schmidt, of Indianapolis. Prof. O. C. Dilly spoke on behalf of the faculty. Dr. A. Muench delivered the alumni address, and Mr. G. D. Harger, of Texas, the valedictory. President R. J. Snyder conferred the degree of Ph.G. upon the twenty-one candidates, as follows: Henry Buckle, Kentucky; Adolph Butlekamp, Kentucky; Chas. A. Casperke, Kentucky; Wm. G. Dilly, Kentucky; D. G. Harger, Michigan; Louis Hertel, Kentucky; F. W. Hoffman, Kentucky; C. Kellar, Indiana; Charles F. Knolling, Indiana; Otto Kremer, Kentucky; Frank J. Lordier, Kentucky; Walter H. Meeke, Tennessee; Herman Metzner, Kentucky; Henry H. Machand, Kentucky; B. M. Overton, Kentucky; C. B. Peacock, Tennessee; Edward Reick, Indiana; Wm. Schanz, Kentucky; W. J. Wedekind, Kentucky; W. Wolf, Kentucky; and Robert Zehnle, Kentucky.

The following were the prize men: Highest general average (gold medal)—C. Kellar; II., C. A. Casperke; III., E. Reick. Highest averages in chemistry—B. M. Overton, C. A. Casperke, and W. H. Meeke. Laboratory honors—C. Kellar, E. Reick, and C. B. Peacock. Best examinations—H. Buckle, F. J. Lordier, and W. H. Meeke. Highest averages in materia medica—Messrs. Meeke, Buckle, and Overton. Honors in botany — Messrs. Casperke, Meeke, Reick, and Lordier.

The members of the junior class who passed their examination successfully, and who were granted certificates, are as follows: M. D. Averill, Kentucky; Wm. Birk, Indiana; R. W. Bottomly, Kentucky; Guy Burton, Mississippi; Miss Alice Churchill, Texas; G. F. Curry, Kentucky; H. F. Cohen, Kentucky; Frank H. Dorsey, Indiana; Chas. Drew, Kentucky; W. O. Hartman, Kentucky; H. Kampfmueller, Kentucky; W. P. Klapp, Arkansas; S. D. Luten, Kentucky; H. F. Lutkemine, Kentucky; G. O. Patterson, Kentucky; Kamer Philpot, Texas; J. G. Reinhardt, Kentucky; Geo. C. Reis, Kentucky; L. W. Rispue, Kentucky; F. M. Scales, Indiana; Oscar W. Schmidt, Indiana; Harry Streuber, Pennsylvania; and T. C. Zimmerman, Kentucky. Several members of the class received honorable mention for their good averages. Messrs Conrad Kellar of Indiana, B. M. Overton of Kentucky, W. H. Meeke of Texas, Henry Buckle of Kentucky, K. Philpot of Texas, and M. D. Averill of Kentucky received medals for proficiency in the various branches.

Miss Churchill was awarded a gold medal in honor of her being the only lady who ever passed a successful examination at the college.

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College of Pharmacy of the City of New York.—The Annual Meeting of the College was held on Thursday, March 19th. The following officers were elected: *President*, Samuel W. Fairchild. *Vice-Presidents*, I, William Massey; II. W. L. Vennard; III, Charles Holzhauer; *Treasurer*, H. N. Fraser; *Secretary*, J. N. Hegeman; *Trustees to serve for three years*, H. W. Atwood, B. F. Hays, T. J. MacMahon, Charles Rice, Geo. B. Wray.

After the election, brief addresses were made by the professors of the College. Prof. P. W. Bedford, in the course of his remarks, expressed his regret that, owing to the increased demand for time and personal attendance rendered necessary by the present plans of lectures, and his other engagements, he had felt compelled to tender his resignation. The President subsequently introduced his future successor, Dr. Virgil Coblenz, who briefly addressed the meeting. Prof. Coblenz, for the present, will return to Europe, where he has pursued a special course of study during the last few years, and will assume his new duties at the close of the summer vacation.

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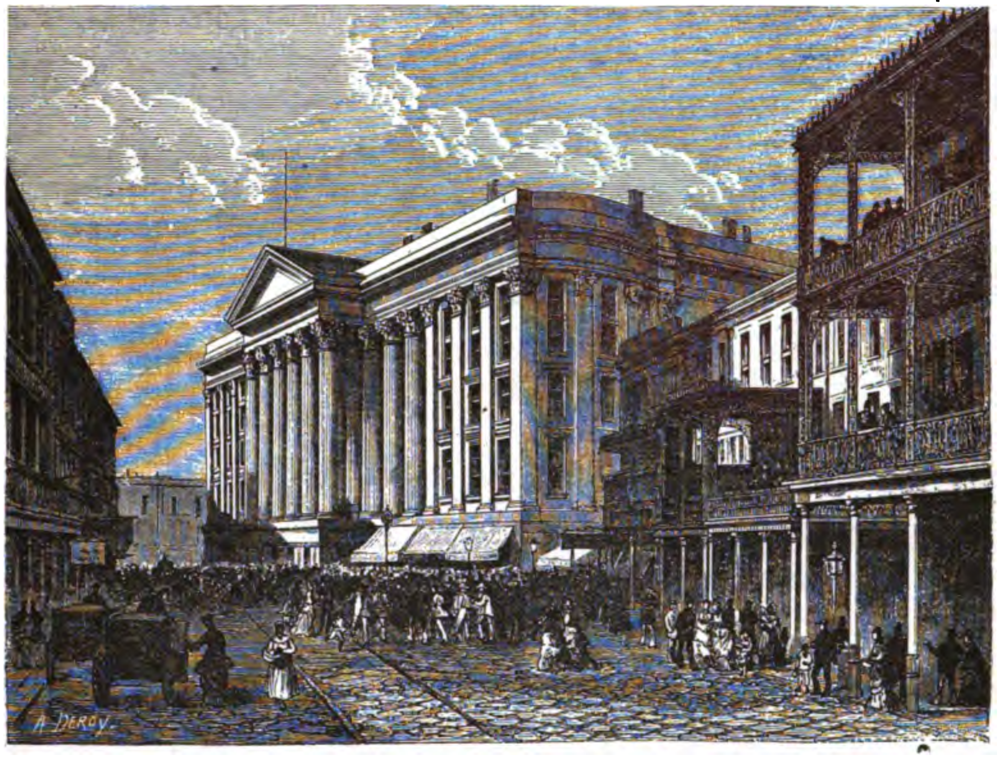
THE CRESCENT CITY.



St. Charles Hotel—Headquarters of the A. P. A.

Those who attend the meeting of the American Pharmaceutical Association on the 27th inst. have a great pleasure in prospect, for New Orleans is unique in its character as an American city. It is one of the oldest, having been founded in 1718, and until a comparatively recent period has been as essentially a foreign town in its population, language, architecture, social customs, and many other prominent features, as if it were in Southern Europe or Central America. It still exhibits on every side the evidences of its French origin, and the thirty-eight years of Spanish rule (1762 to 1800) served to impart to it still further the characteristic marks of its Latin parentage.

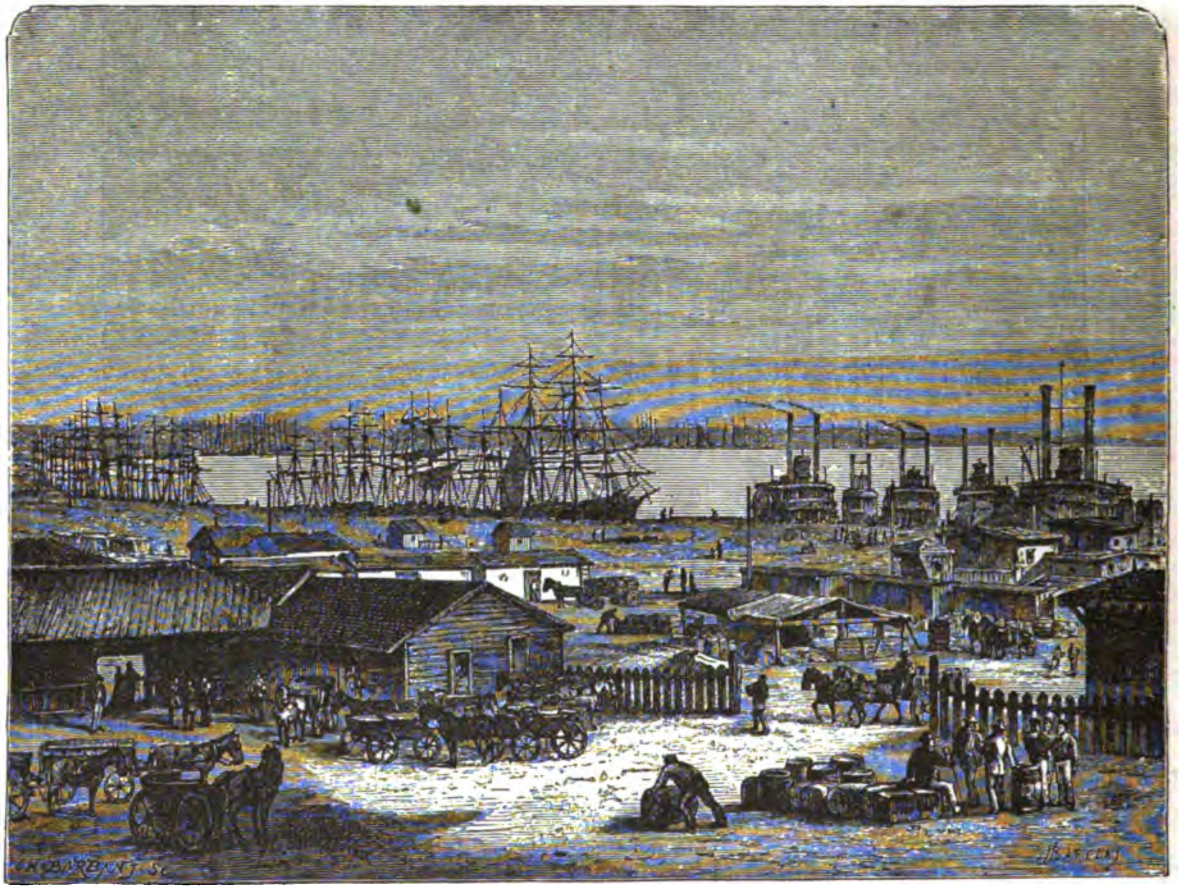
In 1799 the French wars led to immigration of Creoles from the West Indies, which doubled the population and served to strengthen still more the foreign element of its inhabitants.

As a commercial centre New Orleans has natural advantages which are not equalled by any other port in the world. Its water communication with the interior of the country is 15,000 miles in extent, and stretches from the State of New York on the east to the base of the Rocky Mountains on the west, and from the Gulf of Mexico 2,000 miles to the northern line of the United States. Twenty-nine States and Territories furnish the water which flows past its wharves, and navigation is open into sixteen of them. In 1860 New Orleans ranked next to New York in the value and amount of her commerce, which amounted to $324,000,000; and she has been rapidly gaining the ground lost during the war and the political disturbances of subsequent years, through the artificial deepening of the channels at the mouth of the Mississippi since 1879, thereby increasing the facilities for the passage of the largest vessels and steamships. Cotton, sugar, rice, and tobacco from Southern States; coal, lumber, pork, and grain from further points, cover the wharves and fill the warehouses, and the vessels which carry them to other countries there exchange their foreign wares.

The approach to New Orleans by the Q. & C. R. R. is remarkable for the character of its roadway. The train passes over a bridge, seven miles long, which crosses an arm of Lake Pontchartrain. Either end is connected by a trestlework with *terra firma*. The total length of bridge and trestlework is about 22 miles.

On arriving at the city the visiting members will find ready means of reaching the hotel by the cars, hacks, or omnibuses. The St. Charles Hotel has been selected as the headquarters of the A. P. A. It has a capacity for 1,000 guests. When erected in 1852 (at a cost of more than a half-million of dollars) it was the largest hotel in the country. Five minutes' walk is its distance from Artillery Hall, where the meeting will be held. This building is perfectly adapted for the purposes of meeting and exhibition. It has been engaged for one week, giving the exhibitors abundant time to prepare their displays.

The city is built on the left bank of the Mississippi River, which there runs in a magnificent curve, giving the outline a convex form on the city side, from which its title of " The Crescent City " is derived.



View of the Harbor and Levee at New Orleans.

The Mississippi at this point has a width of 3,000 feet and an average depth of 100 feet; and as the current exceeds five miles an hour at high water, some idea of its immense volume may be formed. A break in the bank, opposite the city, of several hundred feet in width, has lately occurred. The rush of water through the gap reminds one of the rapids above Niagara, save for its color; and the roar can be distinctly heard at the distance of a mile. A visit to the crevasse will be included in the entertainment as part of the river excursion on Thursday morning.

This outflow of water is owing to the fact that in consequence of the deposit of mud on its bottom the bed of the river, for many miles above its mouth, is gradually raised until the surface of the water is higher than the adjoining country, and the river has to be restrained by embankments. At New Orleans the river is so much higher than the level of the town that the surface drainage flows away from the river towards Lake Pontchartrain. The ground is so saturated with water that cellars are never constructed, if we except one which is said to have been made some years ago by a native of Pittsburg who ultimately became a citizen of New Orleans, and who could not be contented with a house without a cellar. It cost him a pretty pile of money to get it watertight, but he got it. This condition of things is manifestly inconsistent with the construction of sewers, and, as a consequence, the gutters have had to serve that purpose in many cases. These surface sewers are not always unobjectionable, but they *can* be cleansed and are not, like most sewers, beyond the reach of the health officers.

During recent years many of the 470 miles of streets have been well paved, and locomotion has been rendered correspondingly easier. In a city embracing over 150 square miles of territory this has been no trifling matter. Another good result of this improvement has been the prevention of contamination of the soil with decomposing organic matter, and a corresponding improvement in the healthfulness of the city.

In the early history of the place stockades and ditches were provided for its defence, and their site is still outlined by Canal, Rampart, and Esplanade streets. The former is at right angles to the river, and is the principal thoroughfare. It is over 190 feet wide, and has a central strip, 25 feet wide, on which the horse-car tracks have replaced the grass with which it was once covered. In this plot is also located a bronze statue of Henry Clay, which has often served of late years as a rallying point for public gatherings.

Of the resident portion St. Charles avenue may well be considered the finest street. Its extent is over five miles in length; the road is paved with asphalt and gives a splendid drive. The houses are surrounded with ample grounds, tastefully laid out with lawns and flower beds. The orange tree in all its varieties is freely cultivated, also the banana with its luxuriant leafage. Many varieties of the palm family, whose natural habitat is within the tropics, find there a congenial clime.

There are over a dozen public squares, many of which are nicely kept. Notable among the list is Jackson Square, which fronts the old St. Louis Cathedral, a structure whose establishment dates back to the era of Spanish possession (the original building, erected by Don Andres Almonaster y Roxas, was demolished, and the present one took its place in 1850), adjoining which stands the district court building, formerly the presbytery of Capuchin Friars, and still later used for military purposes. In the middle of the square stands the equestrian statue of Gen. Jackson, a duplicate of the one in front of the "White House" in Washington. Jackson Square, known among the Creole population as the *Place d'Armes*, is most intimately connected with the history of the city. When the conflagrations of 1788 and of 1794 destroyed the greater part of the town, it was here that the homeless inhabitants lived under tents and booths until better accommodations were provided. In earlier days it was the parade ground of the men who defended the city against the Indians. There the girls sent by the king of France—each with their chest of clothing—were welcomed by the rough adventurers whose wives they soon became, and the *Filles à la cassette*, as they have since been known, became the mothers of many of the leading families of the State. There the citizens assembled to protest against the transfer of the territory, then known as Louisiana, to Spain, and to receive the Spanish authorities in such fashion that some of them were executed on the same spot. From there General Jackson marched his little army to the entrenchments south of the town to win the last battle of the war of 1812-15.

The French Quarter will attract the visitor, with its narrow streets and old-time style of buildings, many of which antedate the present century. The Fair Grounds, within twenty minutes' ride of the hotel, will prove an attractive place of resort. The custom house should be visited. It is an immense granite pile, square and grim externally, but whose pillared hall will challenge comparison with any in the country. A fine view of the city and river can be had from its roof, accessible at all times to the visitor.

One Side of Canal Street, New Orleans.

The wholesale drug business is carried on principally by three houses, J. L. Lyons & Co., E. J. Hart & Co., and Finlay & Brunswig. Their combined sales amount to about $3,000,000 annually. The retail drug business numbers about 200 establishments, the majority of whom are in prosperous circumstances, which is largely due to the absence of cutting.

There are two pharmaceutical associations—the State, organized in 1882, and the Parish, or City, in the following year. The former has a membership of about 150 and the latter about 50.

A pharmacy law was enacted in 1888, and a Board of

Pharmacy of nine members was appointed. The good effects of the law are beginning to be felt.

The impression prevails that the climate of New Orleans is oppressively hot in the beginning of May, but this is an erroneous one. The range of temperature runs from 72° to 80° F., and not often is the latter figure exceeded. Of course overcoats and heavy clothing are out of place. One can keep very comfortable by the use of light apparel. The prevailing direction of the wind is southerly; and as the Gulf of Mexico is but a few miles distant, its cooling influence is felt, and the nights are very pleasant.

Tulane University of Louisiana, New Orleans.

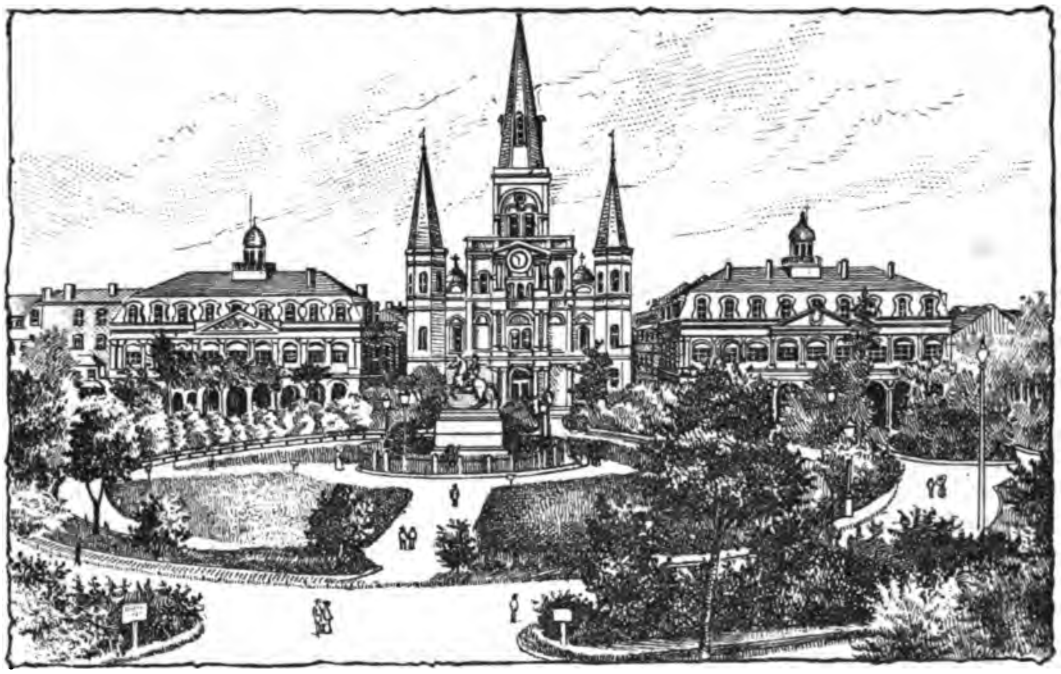
United States Custom House at New Orleans

A unique feature of New Orleans is its mode of sepulture. The saturation of the ground prevents the excavations of graves, so that coffins are placed in vaults, like pigeon holes, erected in tiers above ground. One of the illustrations shows such a series of tombs in the Girod Cemetery. This and the Metairie and Greenwood Cemeteries will well repay those who may visit them.

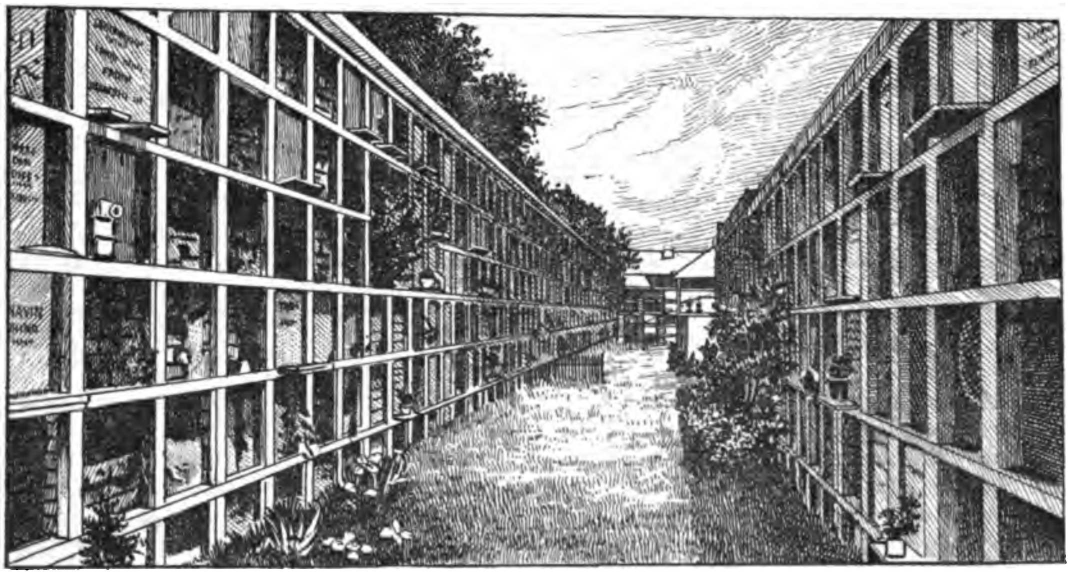
We lack space for description of many of the beautiful public buildings which exist, but will barely mention the Tulane University of Louisiana (incorporated in 1849), a picture of whose classic building is here shown, and is well worth a visit.

Another Cure for Tuberculosis.

ANOTHER cure for tuberculosis is advocated by Dr. Jeannoutot, a young but already prominent medical practitioner of Paris. His process is as follows: Spirit is heated in a lamp to 148° F. [248° F. in the original, which is evidently a misprint], and connected by a yard of india-rubber tubing to a copper vessel the size of a teacup. This vessel contains a mixture of oil of eucalyptus, beech-tar creosote, hydrocyanic acid, oil of bitter almonds, and thymol. The liquid gives off a strong aromatic odor, and a thick vapor to be inhaled by the patient. A room is heated to 140° F., the temperature needed to open the pores of the human skin. The patient is introduced clad only in bathing dress, and thus takes in the restorative air bath both by his lungs and through his pores. The steam, though very strong, does not interfere with respiration. One hundred Gm. of the solution poured in a copper receptacle suffice to steam patients for three hours consecutively. This treatment is supplemented by doses of a compound principally formed of beech-tar creosote and phosphate of lime, a varied diet, and plenty of fresh air. Dr. Jeannoutot further states that tuberculous expectorations, containing numerous bacilli, have been completely sterilized by the action of this vapor—so thoroughly, in fact, that guinea-pigs could afterwards be inoculated with the germs in question without the slightest result, though before such sterilization the effects distinctly showed the development of tuberculosis. He adds that he has submitted his remedy to the Academy of Medicine and feels sure that a cure has been discovered.—Paris Correspondent of *Chem. and Drugg.*



Cathedral of St. Louis and Jackson Square, New Orleans.



Vaults in the Girod Cemetery, New Orleans.

Antipyrin and Mercuric Chloride.—Petsche (*Pharm. Rundsch. Prag.*) has observed that when cold solutions of antipyrin and mercuric chloride are mixed a white precipitate is produced. On heating to boiling this disappears, but by protracted boiling a brown, resin-like body is precipitated which, when separated, dissolves in nitric acid and is colored scarlet by sulphuric acid. The nature of this resin-like subtance has not yet been determined.

[ORIGINAL COMMUNICATION.]

A USEFUL BUT DANGEROUS PRESCRIPTION.

BY
A. E. PHILIPS, DRUGGIST,
Vice-President Florida Pharmaceutical Association,
Sanford, Orange Co., Florida.

℞. Atropia Sulph ....grs. iv.
Bismuth Sub. Nit.... ... ℥ iss.
Hydrarg. Chlor. Mite..... ℥ ss.
M. thoroughly. Sig.: Keep sore covered with the powder.

THIS prescription was in the hands of a stranger and was a well-worn copy. The original was said to have been prescribed, by an eminent medical college professor of Chicago, for an ulcer on the leg of two years' standing from which the bearer was then suffering. All previous remedies had failed, but the ulcer yielded to this prescription, its severe and long-continued pain subsiding instantly, and final healing being induced *in a few days*.

The scar left by this ulcer was shown, and was quite as large as a silver dollar. The owner said the sore presented an indolent surface of about this size, perhaps, one-eighth of an inch below the surface of the surrounding skin, and this cavity was kept *filled* with the powder, a simple bandage being applied and no washing or other dressing used. He had been well for years, the trouble never returning. Within that time he had, in his travels, furnished a copy of the prescription to a number of persons suffering from ulcers. In one case an ulcer was larger than his, with four smaller ones on the same leg, and in each and all cases the result was the same as in his own: the pain ceased at once and the healing process was almost magical.

It must be borne in mind that the powder contained one-fourth of a grain of sulphate of atropia to each drachm, and the instructions being to "keep the sore covered," other patients than the original probably *filled* the ulcerous cavities, which must in some instances have required at least one, and in others possibly two, drachms. Thus from one-fourth to one-half of a grain of this dangerous ingredient entered into a first dressing, and more followed at intervals in "keeping the sore covered" or "filled."

Fortunately, in all these cases, as stated, the results were most happy, accompanied by no serious circumstances. But another occurred under the observation of the writer in which very alarming symptoms appeared, and but for timely relief the termination might have been fatal. A gentleman suffering from some eczematous affection of the lower limbs made, during maddening paroxysms of itching, some heroic applications of severe remedies to the parts, which, on one foot, had caused the skin to slip, leaving exposed about four inches square of bare flesh, and from this a watery discharge was issuing, the itching unabated, alternating with great pain. Hearing of this wonderful ulcer cure, he procured a copy of the prescription, had it prepared, and, removing his emollient dressing, proceeded to "cover" all this surface with the powder, besides applying a little more to two inches square on the knee of the opposite limb, from which the cuticle had been scratched.

Within five minutes, perhaps, the patient detected a slight bitter taste in the mouth, and dryness of the salivary glands, tongue, and whole mucous lining quickly followed. Recognizing the toxic effects of belladonna, but being so anxious to heal his troublesome foot, he determined to risk the danger a little further, and within ten minutes took twenty-five drops of laudanum, hoping a little antidotal treatment would enable him to "tide over" and still retain his curative dressing. The belladonna, however, gained ground, the pupils became quite dilated, and the dryness of the mouth, extending well back to the fauces and somewhat down the throat, increased speedily. The dose of laudanum was repeated and a physician sent for, while the powder was washed off both foot and knee. This was about fifteen minutes after its application. The doctor arrived five minutes later and immediately administered one-half of a grain of sulph. morphia hypodermically. By this time the patient was unable to void urine, was talking rapidly, though too hoarse to speak distinctly, eyes were glassy, countenance anxious, lower limbs considerably paralyzed, and slight dizziness of the head was approaching. At this juncture a crisis seemed to have been reached in the struggle between those two powerful foes, belladonna and opium, and the battleground was trembling beneath them; but the reinforcement of another one-fourth grain of morphia hypodermically, five minutes later, decided the mastery. The antidote had won the victory.

The violent symptoms now being subdued, and the patient yielding to morphine stupor, he was put to bed and sank into a deep sleep of seven or eight hours' duration. It was several hours later before the paralysis of his hips and lower limbs had diminished sufficiently to enable him to walk across the room, and some days before all the functions of the body regained their normal condition. No further treatment became necessary, except laxative to offset the constipating effects of the opium.

The explanation of what casually appears to be an inconsistency in these experiences is simple: The indolent surface of an old ulcer could not absorb the atropine and pass it into the circulation, as did the freshly denuded cuticle, or other patients, using the remedy in as large or larger proportions, would have been in equal danger. Nevertheless, it is apparent that if applied as freely to a healthy ulcer the result might have been serious; and such a prescription, in the hands of the inexperienced or those ignorant of its deadly poison, is apt to be applied to any obstinate sore place. Hence the utmost caution should be exercised by the physician in directing the use of, and the patient in applying, so dangerous a remedy.

In conclusion it may be stated as an interesting fact that the knee was almost entirely well, and about half (or two inches square) of what had been bare flesh on the foot exhibited a tender membranous covering over the surface, within about twenty-four hours after the powder had been applied, it having been allowed to remain only fifteen minutes; the watery discharge from this portion had ceased, and greatly diminished from the remainder, and the whole, yielding to soothing remedies, rapidly healed.

MARCH, 1891.

NOTE:—The latter patient had never been accustomed to the use of opiates in any form, and the fact that 50 drops of laudanum and ¾ gr. of morphine were needed for antidotal service within twenty minutes furnishes other evidence of the serious extent of belladonna poisoning in his case.
P.

[ORIGINAL COMMUNICATION.]

FLUID EXTRACT OF IPECAC.*

BY

PROF. J. U. LLOYD,

Cincinnati, O.

STUDY OF MENSTRUUMS.

In devising a method for making fluid extract of ipecac that shall conform to an assay value, basing the standard on proportion of emetine, we necessarily meet with factors that, as has been shown by preceding papers, have not been prominent heretofore.* The fluid extract might conform to the descriptions of the U. S. P. in its sensible behavior and be very inferior otherwise, as demonstrated by assay, and the syrups made of it might be transparent and yet comparatively worthless from an emetine standpoint; hence it is necessary that a study of the action of menstruums on ipecac be made, if we hope to arrive at conditions which will prove most suitable for making the fluid extract, from an emetine standard. I therefore offer the following comparisons, stating, however, that it was not my endeavor to produce the best *possible* results. Had this been the aim I would have used dusted ipecac and long maceration, consuming weeks in the manipulation. Busy manufacturers and apothecaries desire economy of time as well as of material, together with simplicity of method, and I therefore present a line of investigations that bear upon the subject from an ordinary and not extraordinary standpoint. I believe that:

1. We must extract the drug economically, quickly, and effectually.
2. We must make an eligible fluid.

With a view to this object the following experiments are offered, and I will repeat that no extraordinary precautions were taken in the manipulation, the object being to arrive at comparative results of what might be considered the usual work of a laboratory. In reference to this point, it seems to me that, for the purpose of establishing processes that are expected to be of general utility, experiments should be made without extraordinary attention as to details. The result should be such as to show what is possible under the conditions that govern the ordinary manipulator. If we exert ourselves in experimenting in order to produce the best possible results, surrounding ourselves with the most approved forms of apparatus, and give more skill and attention to the experiment than is practical with the busy manufacturer or apothecary, it seems to me that we overshoot the mark. Probably I now voice the sentiments of the majority of druggists; for to place the shop preparations of the U. S. P. on a standard above average possibilities would doubtless throw the making of that class of substances entirely into the hands of manufacturers, and also prevent apothecaries from growing into manufacturers.

Two hundred pounds (16 troy ounces calculated to the pound) of ground ipecac, with assayed value 2.5 per cent emetine, were divided into three parts.†

1. One hundred pounds were moistened with officinal alcohol (0.820), and, after macerating twenty-four hours, percolated until 116 pints of percolate were obtained, which were reserved. Then a second percolate was run off.

1st 116 pints assayed 0.28 per cent. emetine
2d 116 " " 0.06 " " "

The percolate that followed was below grade for profitable extraction. The loss of alcohol and time, with a downward yield from 0.06 per cent emetine, would not warrant further percolation. The menstruum was then changed to a mixture of alcohol 3 parts, water 1 part, by measure, and the percolation continued.

1st 116 pints assayed 0.48 per cent emetine
2d 116 " " 0.24 " " "

The menstruum was again changed to a mixture of alcohol 2 parts, water 1 part, by measure; 116 pints were percolated, which assayed 0.24 per cent emetine. From this the strength of the percolate ran rapidly down until the yield of emetine was less than its calculated value.

Experiment 2.—Fifty pounds of ipecac were moistened and percolated with a mixture of alcohol 2 parts, water 1 part, by measure.

1st 58 pints assayed 1.24 per cent emetine
2d 58 " " 0.52 " " "
3d 58 " " 0.32 " " "

From this the emetine value of the percolate ran rapidly down until the emetine obtained was insufficient to repay the expense of further manipulation.

Experiment 3.—Fifty pounds of ipecac were moistened with a mixture of alcohol 2 parts, water 1 part, acetic acid 5 per cent.

1st 58 pints assayed 1.17 per cent emetine
2d 58 " " 0.59 " "
3d 58 " " 0.34 " "

From this the emetine value of the percolate ran rapidly down until the emetine obtained was insufficient to repay the expense of further manipulation.

Remarks.—The first (U. S. P.) experiment was given the advantage for extraction, as was intended. The height of material in the percolator was nearly twice that of the others, and the time consumed in making the percolation was correspondingly longer. Every chance was given that process, and yet analysis of the result shows striking defects: ‡

The first percolate, 116 pints, gave a total per cent (brought by calculation to 1 pint) of...	32.48	per cent	emetine
The second percolate, 116 pints, gave a total per cent (brought by calculation to one pint) of..	6.96	"	"
The combined 232 pints gave (calculated).·	39.44	"	"

Which shows that if the total percolate had been reduced to the officinal bulk in the usual method of making fluid extract of ipecac, that fluid extract would have assayed (by calculation) only about 0.40 of 1 per cent emetine.

If the operation had been suspended now (the percolation had been carried to its economical limit with the officinal menstruum) the 100 pounds of ipecac would, by calculation, have only made about 26¼ pints of fluid extract of ipecac that would conform to a test of 1.5 per cent of emetine. It is also evident that, since the crude ipecac assayed 2.5 per cent emetine, only about one-sixth the possible value of the drug had been thrown into the percolate. The change in menstruum that followed demonstrated the superiority of a mixture of alcohol 3 parts, water 1 part, as an abstractor; for, notwithstanding the

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* Continued from page 84.

previous apparent exhaustion of the drug when the menstruum was changed to alcohol 2, water 1,

The first 116 pints of percolate abstracted (calculated to 1 pint)..	55.68	per cent emetine
The second 116 pints of percolate abstracted (calculated to 1 pint)…………. ……….	27.84	" "
The combined 232 pints of percolate abstracted (calculated to 1 pint)…………………	83.52	" "

which was more than twice the amount abstracted by the action of the U. S. P. menstruum on undisturbed ipecac.

The menstruum that followed this (alcohol 2 parts, water 1 part) gave evidence of superiority over the second menstruum, for 116 pints of percolate gave a total (calculated to 1 pint) of 27.84 per cent emetine, the same as that yielded by the preceding percolate. It follows, therefore, that the total percolates gave a combined percentage of 150.80 per cent emetine (calculating the entire percolate to 1 gallon), showing that if they could have been concentrated to 100 pints without loss of emetine the fluid extract would have assayed 1.50 per cent. emetine. The loss of emetine from possible amount (the drug containing 2.50 per cent) is to be accounted for by the rambling method of manipulation. This experiment is given to illustrate the fact that after the U. S. P. menstruum had apparently exhausted the drug, the marc was of more value than the extract obtained therefrom, as is shown, if I have not made mistakes, both by the calculation and the experiments.

The second experiment shows that with a menstruum made of alcohol 2 parts, water 1 part,

50 pounds of ipecac gave to first percolate, 58 pints (calculated to 1 pint)…………………	71.92	per cent emetine
50 pounds of ipecac gave to second percolate, 58 pints (calculated to 1 pint)……………	30.16	" "
50 pounds of ipecac gave to third percolate, 58 pints (calculated to 1 pint)…………………	18.56	" "
A total 174 pints (calculated to 1 pint) ……………………	120.64	" "

If this percolate could have been concentrated to 50 pints without loss of emetine, the fluid extract would have represented 2.40 per cent emetine—nearly the possible theoretical yield of the ipecac.

The third experiment demonstrates that the addition of a little (5 per cent) acetic acid to the menstruum gave no appreciable advantage so far as emetine exhaustion is concerned. The first percolate was a trifle weaker, the second and third each a trifle stronger, the aggregate of corresponding amounts being:

Without acetic acid, total emetine extracted………………………………	120.64	per cent.
With acetic acid, total emetine extracted ………………………… ….….	121.80	"

the difference in favor of the acid—1.10 per cent—being so small as to show that it might have resulted from unforeseen causes, and was at least so slight as to render its use immaterial.§

To Sum Up—The present officinal menstruum is not, under comparative tests with ground ipecac, according to these experiments, the proper menstruum to abstract ipecac of its natural alkaloid, more than five-sixths being lost in this example. The proportion of loss is less in using finely powdered ipecac than in using the ground drug; but on a large scale it is expensive and nearly impractical to employ the dusted powder. Besides, there is a comparative inferiority, even in using a dusted powder.

The use of a menstruum composed of alcohol 2 parts, water 1 part (by volume), is preferable to the officinal (alcohol 0.820) in the ratio, as shown by the experiments herein introduced, of

Officinal method, 39.14 that 100 pounds of ipecac yielded to 232 pints percolate;
Alcohol 2, water 1 (mixed), 102.08 that 50 pounds of ipecac yielded to 116 pints percolate,

which, brought to identical amounts, would show:

Officinal method, 39.14 from 100 pounds ipecac,
Alcohol 2, water 1, 204.16 from 100 pounds ipecac.

This latter menstruum is shown, by the experiment introduced, to be capable of nearly extracting the theoretical amount of emetine from ground ipecac, if a percolate three times its weight is obtained, and it is evident that a mixture of alcohol 3 parts and water 2 parts is better still and will practically abstract the emetine. It follows, therefore, from a consideration of this first step, that manufacturers who use finely ground ipecac (as is necessary, I believe, on a large scale) and conform strictly to the U. S. P. menstruum will not produce fluid extract of ipecac that assays favorably in emetine with fluid extracts that are made by those who adapt the menstruum to the object, and who afterward complete the operation so that the finished fluid extract conforms, as a syrup basis, to the U. S. P. requirements.

Manufacturers and apothecaries who follow the present U. S. P. strictly can, in my opinion, neither compete in price nor quality with those who deviate therefrom and adopt rational methods to attain the desired end, and they will unjustly suffer in reputation if their preparations are assayed for emetine at the present time.¶ Strange as it may seem, the manufacturer who, with the utmost integrity, can say that he followed the U. S. P. may be mortified to find his preparation of low grade as compared with others made of even an inferior drug, by means of a cheaper menstruum, and at less expense. It would not surprise me to find an average of less than 0.50 per cent emetine in much of the fluid extract of ipecac that is made by the present officinal process.

The foregoing line of experiments is simply introduced as an illustration, being typical of many others (in both small and large amounts) that I have instituted, hoping to arrive at data by which to formulate an effective and economical process for making this important fluid extract. I believe, however, that it is sufficient to show that if the present Revision Committee proposes to establish assay methods for determining the emetine percentage of fluid extract of ipecac (and others alkaloidal), the sub-committee to whom these substances are awarded should introduce working processes that will enable both manufacturers and apothecaries to produce high-grade fluid extracts with the minimum of expense. The present U. S. P. process is, as I view it, neither practical nor possible from an assay standpoint. A high average of emetine cannot be obtained by it unless the expense involved by the continued percolation be so great as to forbid its competitive employment.

I must not forget to add that I have as yet considered only one step in the preparation of fluid extract of ipecac, and that, in my opinion, subsequent manipulations are as important as the selection of a menstruum, and deserve as careful consideration as does the foregoing. Should the Committee of Revision of the U. S. P. not consider it judicious to standardize alkaloidal fluid extracts, the consideration of the subject from an assay standpoint, in order to formulate the best process, will not be out of place.

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* I do not assert that it has been demonstrated that ipecac depends on emetine only for its value. Upon the contrary, I admit that other constituents may be necessary to give the full therapeutic force of the drug, but emetine is surely the most prominent emetic constituent.

† The drug was "fine ground" in a burr stone mill. In working small amounts the powder of the U. S. P. will give comparative or better effects. As quantities change, it is necessary to use some judgment in such directions, and on a large scale we must often deviate from the directions given in the U. S. P., which are designed for small amounts. The object of the Pharmacopœia process must be reached by manufacturers in the most direct and effectual manner, economy of time and of method being important factors.

‡ I might perhaps more properly have estimated the total amount of emetine abstracted. However, for comparison, the same object is attained by the method employed.

§ The value of the acid as an alkaloid preserver is not considered herein, only its value as an extractor of the drug. Whether it is of use or disadvantage in the subsequent steps is a point that cannot now be properly considered.

¶ I recently assayed a specimen of fluid extract of ipecac made by the U. S. P. process which I feel assured was supposed by its maker to be a superior preparation. His sincerity is unquestionable. The result showed that the preparation contained less than 0.5 per cent emetine. This could not have occurred with him had the menstruum of the U. S. P. been adapted to the object of the assay.

The Advance in Cod-Liver Oil.

THE following passages from a recent editorial in the *Chemist and Druggist* represent the latest news about the commercial prospects of cod-liver oil:

From the commencement of the present cod-fishing season in Norway the reports of the progress of the fishing have been exceedingly unsatisfactory. Violent storms raging along the shores of the Lofoden have kept the fishermen land-bound for many days in succession, and when at last it became possible to venture upon the waters the fish proved scarce in numbers and poor in quality. That there is a very substantial foundation for the considerably enhanced prices which are now asked for new medicinal oil, is shown by the official statistics published by the Norwegian Fisheries Department. According to this authority, the number of fish caught from the commencement of the season up to March 1st was only 800,000, the average for the corresponding period of the six preceding seasons being 6,700,000. The number of boats engaged in the fishing this season (4,900) is somewhat less than that of recent years, probably owing, in part, to the unremunerative nature of the business, and the yield thus far of steam-refined oil has been 420 hectolitres (a 25-gallon barrel equals ⅘ hectolitre), against an average of 2,700 hectolitres for the corresponding parts of the six seasons preceding. How large the proportion of medicinal oil will be this season it is not yet possible to say, but we understand that, according to telegraphic advices from Lofoden on March 7th, only 1,130 hectolitres of oil had been produced, as compared with 5,017 hectolitres last year. And if we include the deficiency in the smaller centres of supply at Westeraalen, Nordmöre, and Soudmöre, it is estimated that the total output of oil is already about 7,000 hectolitres, or 5,600 barrels, less than last year. Not for several years in succession has the outlook been so poor as it is to-day. Last year the fishing commenced badly, but towards the close of the season such an improvement set in that the loss was all but recovered. It is extremely doubtful whether such a favorable turn is in store for the fishers this season, as barely a fortnight now separates us from Easter, when the fleet abandons Lofoden and sails northward for Finmarken. The nearest approach to the present failure was during the disastrous spring of 1883, when medicinal oil advanced to £20, and at one moment reached the price of £25 per barrel, only slightly receding from those figures throughout the year. We are still very far from such panic prices to-day, and fine non-congealing oil may still be had in the wholesale market at £5 per barrel; but it must be borne in mind that the present value is not yet up to the average price, and the principal dealers confidently talk of £7 or £8 as a probable quotation in the near future.

Cantharidate of Potassium.

IN respect to the preparation of the hypodermic solution of cantharidin for the treatment of tuberculosis, Professor Liebreich points out that the sodium cantharidate, as well as the remainder of the salts prepared by Dragendorff and Masing, are not pure chemical substances, there being probably present varying quantities of uncombined cantharidin. They are not, therefore, suitable for the preparation of hypodermic solutions. In order to obtain a reliable solution, it is best to dissolve a weighed quantity of cantharidin in alkali by the prolonged action of heat, and then to carefully dilute with water to the desired strength. The amount of alkali theoretically required to convert the cantharidin into a salt of cantharidic acid is not, however, sufficient to dissolve the principle, and after a large number of experiments the professor concluded that in order to obtain a solution that would remain clear when diluted or cooled, it was necessary to employ twice the weight of caustic potassa or one and a half times the weight of caustic soda. The alkali must be pure, dry, and free from carbonate. The solutions are therefore prepared by heating in an accurately graduated liter flask on a water bath

Cantharidin	0.2 Gm.
Potassium Hydrate	0.4 Gm.

with about 20 C.c. of water until a clear solution is obtained; then gradually, while the solution is kept hot, water is added up to the liter mark, and finally, after cooling, the volume is made up exactly to a liter. Instead of potassa, sodium hydrate 0.3 Gm. may be used and the solution similarly effected. It is reported that Dr. Gerhardt, one of the physicians who attended the late Emperor Frederick, has tried Liebreich's treatment on twenty patients with unsatisfactory results.—*Chem. and Drugg.*

New Synthetic Remedies.

THE records of the German Patent Office appear to promise quite a crop of additions to the competitive materia medica, though the newcomers do not seem to have arrived yet at the dignity of bearing convenient registered names (*Pharm. Zeit.*, February 11th and 18th, pp. 97 and 115). Patent 55,026 relates to the preparation of benzoylamidophenylacetic acid by treating amidophenylacetic acid in alkaline solution with the calculated quantity of benzoyl chloride. It is said to crystallize in white needles that melt at 175.5° C., and to form very soluble salts with alkalies. It is claimed to exercise a valuable disinfecting action upon the intestinal canal, which is said to be shared by the phenyl ester of the acid.

Patent 55,007 is for a method of preparing alkylsulphonate salts (said to have a future in pharmacy) by the action of sulphites of alkalies, alkaline earths, or heavy metals upon the corresponding alkylsulphates. The reaction is represented by the equation:

$$\underset{\substack{\text{alkylsul-}\\\text{phate of}\\\text{sodium}}}{\left.\begin{matrix}CH_3\\Na\end{matrix}\right\}SO_4} + \underset{\substack{\text{sodium}\\\text{sulphite}}}{Na_2SO_3} = \underset{\substack{\text{sodium}\\\text{alkylsul-}\\\text{phonate}}}{\left.\begin{matrix}CH_3\\Na\end{matrix}\right\}SO_3} + \underset{\substack{\text{sodium}\\\text{sulphate}}}{Na_2SO_4}$$

Patent 55,009 has to do with the preparation of dichinoline derivatives. Meta-amidophenyl-paramethoxychinoline is treated in the cold with glacial acetic acid, and then by subsequent heating converted into a mixture of two isomeric methoxy-oxymethyldichinolines, which are separated by conversion into their sulphuric acid salts. The compound least soluble in hot sulphuric acid, named "β basis," yields upon reduction a tetrahydro product that is alleged to possess the same properties as quinine in respect to malarial fever, without any injurious by-effects. Lastly, patent 55,119 covers three different methods of preparing ortho-nitro-meta-methoxy-phenyllactic acid, as well as a method of preparing from this compound by reduction para-methoxy-dioxydehydrochinoline, which is also alleged to possess highly valuable properties as an antipyretic in malaria.—*Pharm. Journ.*

Bromoform.

Since this agent is coming more into use, chiefly as a remedy in the treatment of whooping cough, the following portions of a paper relating to its preparation and properties, by Mr. George M. Beringer, printed in the *Amer. Jour. Phar.*, will be of general interest. After reviewing some of the published processes, the author decided to adopt Dumas' process, with some modifications.

Four ounces of marble lime are slaked and then mixed with 1 quart of water, and the milk of lime thus made transferred to a flask connected with an inverted condenser. A funnel tube is passed through the cork and reaches below the surface of the liquid. In order to obtain mechanical agitation, so as to keep the lime dispersed through the liquid, a small glass tube is run to near the bottom of the flask, and, extending through the cork, is attached to a rubber atomizer bulb. By pressing this bulb sufficient air is forced into the mixture to keep it thoroughly agitated, thus supplying the place of the mechanical agitator of the manufacturer. Four ounces of acetone are added in portions, one-half being added at once and the remainder gradually during the operation. The contents of the flask are maintained at a temperature of 45° to 50° C., slightly below that of the boiling point of acetone, and bromine is gradually added in small quantities through the funnel tube, the mixture being thoroughly agitated as each portion is added. When the reaction is completed and the further addition of bromine yields a yellow color, a sufficient quantity of milk of lime is added to render the solution *decidedly alkaline*, and distillation begun at once. The bromoform, although boiling at a much higher temperature than water, comes over in the first portion of the distillate. The aqueous portion of the distillate usually contains considerable acetone, and may be returned to the flask and used in a subsequent operation.

The bromoform obtained is repeatedly washed with water, separated, and treated with calcium chloride and then distilled. I was surprised, on attempting to fractionate the liquid, to find that a portion of the distillate was obtained below 100° C., a fraction being collected between 90° and 100° C. On agitating 5 C.c. of this fraction with 20 C.c. of water in a stoppered graduated cylinder, but 1 C.c. separated, the remainder being dissolved. The aqueous portion separated possessed the odor of acetone, and yielded iodoform, with iodine and potassium iodide in an alkaline solution. The heavy, oily liquid possessed the odor and taste of bromoform, but the small amount remaining precluded any further investigation. The fractions obtained between 100° and 140° C., being small in quantity, were mixed and 5 C.c. agitated with 20 C.c. of water, but 2 C.c. remained undissolved. The aqueous portion likewise gave the iodoform reaction.

The presence of acetone in the bromoform after repeated washing with water is worthy of notice, and shows the necessity of fractionally redistilling the product. Richter ("Organic Chemistry," p. 161) states that "acetone, in the presence of caustic soda, combines with coloroform, yielding acetone-chloroform:

$$(CH_3)_2C\left\{\begin{matrix}OH\\CCl_3\end{matrix}\right.$$

"It seems not unlikely that under similar conditions a corresponding compound may be formed with bromoform.

"The fraction distilling at 143° to 148° C. showed a spec. grav. of 2.8645, and that collected at 148° to 151° C. had a spec. grav. of 2.9082. These fractions were exposed on a recent cold morning and at 9°-10° began to cloud. When the thermometer marked 8° crystals began to appear, and at 6° C. a mass of crystals had formed in each. These were quickly transferred to a funnel, a small layer of absorbent cotton having been placed in the angle of the funnel and the liquid portion allowed to drain. The funnel was now brought in-doors and the crystals allowed to melt. The first portion that escaped from the funnel was collected separately, and the remainder was collected in a perfectly dry, clean vial, and is believed to be chemically pure bromoform. It showed the following characters: Specific gravity, 2.900 at 15° C.; boiled steadily at 147° to 148° C., and became crystalline at 6° to 8°, and a firm, solid mass at +4.5° C. These temperatures were obtained with a thermometer corrected at Yale. . . ."

Care must be taken to add the bromine in small portions and to have the contents of the flask decidedly alkaline, or there will be formed more or less *mono-brom-acetone*, a serious contamination of the product. This compound is a very powerful irritant. A few drops escaping in the room so irritate the eyes and nostrils as to render the atmosphere unendurable. As its boiling point, 140° to 145° C., approaches nearly that of bromoform, it cannot be separated by fractionating alone. In experimenting with the process of Gunther, above mentioned, the writer was unfortunate enough to obtain some mono-bromacetone, greatly to the discomfort of himself and other occupants of the room. The contaminated product was treated with solution of sodium carbonate, which removed but slightly the troublesome compound. It was then agitated with lead oxide, water was added, the whole thoroughly shaken and thrown in the flask and redistilled, the resulting distillate washed and then fractionated, yielding an unobjectionable product.

Bromoform suitable for medicinal purposes should answer the following requirements: A colorless, volatile liquid having a characteristic odor and penetrating sweet taste, specific gravity 2.86 to 2.90, and should vaporize without leaving any residue at 147° to 150° C. A few drops evaporated from a watch crystal or filter paper and the vapor inhaled, should not irritate the eyes or nostrils. Agitated with sulphuric acid, no color should be imparted to either liquid. Treated with Liquor potassæ, no coloration should be produced. On agitating with distilled water, the water separated should not show an acid reaction to test paper nor yield a precipitate with silver nitrate, nor, on adding it to a weak ammoniacal solution of silver nitrate and allowing to stand, should a metallic mirror be formed.

The Opium Traffic in India.

Mr. S. Smith, by means of a question in the British House of Commons on March 9th, has elicited the statement that there are 10,000 opium shops licensed by the Government in India, and the consumption of opium in Lucknow has increased from 36,240 tolas in 1883-84 to 64,320 tolas in 1887-88. Throughout India generally the consumption is slowly increasing. Mr. Smith suggested, seeing that in Great Britain it is unlawful to sell opium, except by a duly qualified and registered druggist under stringent regulations, and labelled "Poison," that her Majesty's Government would take into consideration the expediency of adopting similar provisions with regard to its sale in India; but the Government has refused to consider the proposition.—*Chem. and Drugg.*

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Aluminium at $1.25 per pound is in the market. A price list sent out to the trade by the Cowles Electric Smelting and Aluminium Company, of Lockport, N. Y., gives the following figures: In lots of more than 2,000 pounds, $1.25 per pound, less 20 per cent discount; and in 1,500 pound, 1,000 pound, and 500 pound lots, $1.25 per pound, with 15, 10, and 5 per cent discount. In 50 to 500 pounds the price is $1.25 net; 10 to 50 pounds, $1.50; and less than 10 pounds, $1.75 per pound.

Assay of Theobromine in Diuretin.—Diuretin is a compound of sodium salicylate with theobromine, containing (theoretically) 49.7 per cent of the latter. Some time ago Vulpius published a method for determining the percentage of theobromine, but, owing to the solubility of the latter in water, it would be necessary to apply a correction to the result obtained, by adding 8.46 per cent. At least this is the statement made by Eckenroth (in *Pharm. Zeit.*). The latter proposes to precipitate the theobromine by passing a current of carbonic acid gas through the solution. This may be employed in excess, without precipitating any salicylic acid. But even with this modification the whole of the theobromine is not obtained, the result being only about 3 per cent higher than that from the first-mentioned process.

Cradina, a New Digestive Ferment.

TEN years ago M. Bouchut found a powerful ferment in the juice of the common fig tree (*Ficus Carica*), and this is now the subject of a paper (in *L'Orosi*, 1890, p. 364) by Dr. Mussi, who gives a description of the isolation of the substance, and names it cradina, from *krade*, the name given by Greeks to the part of the fig associated with digestive power. It is insoluble in water, but dissolves readily upon the addition of a trace of acid or alkali, and the solution placed in contact with moist fibrin effects complete and true digestion.

It contains nitrogen, and in the dry state it forms a friable, semi-transparent, dark yellow, amorphous mass, yielding an amber-yellow powder.

In water it swells, but does not dissolve, though upon being shaken it imparts to the liquid a milky appearance.

When dissolved by the aid of alkali or acid, a concentrated solution is dark yellow, but becomes colorless upon being diluted.

Cradina differs from pepsin in maintaining its digestive power in an alkaline liquor, and from papayin or papayatin in being insoluble in water, not precipitated from solution by alcohol or lead acetate, and in its activity not being diminished in the presence of hydrochloric acid. In a neutral liquid it is devoid of digestive power, and it has no action upon starch.

Kudzu Starch.

Pueraria Thunbergiana Bth., a leguminous plant from Japan, which has a large starchy and fibrous root, and which is described as a beautiful trailing shrub, has recently been introduced into cultivation in France (*Gard. Chron.*, February 14th, page 211). As the plant produces abundance of root and the stem yields a strong fibre, it is likely that the cultivation of the plant will spread in Europe. Starch from the root was exhibited at South Kensington and appeared of excellent quality, being free from smell or unpleasant taste and yielding a large percentage of starch jelly. The starch under the microscope appears muller-shaped, but many of the grains are angular at one end and round at the other, are destitute of the marked hilum frequently found in the starch of leguminous plants, and bear more resemblance to those of colchicum.—*Chem. Journ.*

Medical Legislation in North Carolina.

[AN occasional correspondent in North Carolina has favored us with the following copy of a bill which was introduced during the last session of the Legislature by a member from the western part of the State. The proposer is said to have been in "dead earnest," and there is little occasion for doubting it in view of its final clauses. Its author does not seem to have had much more confidence in courts and judges than he had in doctors; and it looks very much as if his experience with the medical men of his neighborhood had not been of a kind to develop a feeling of cordiality and mutual good will. It will not be surprising if he should try his hand on a pharmacy bill at the next session, in which case we hope to have an advance copy for the benefit of our State Pharmaceutical Associations who have trouble with their efforts to prepare an act acceptable to their legislators.]

AN ACT TO REGULATE THE CHARGES OF DOCTORS, ETC.

1st. It shall be unlawful for any doctor or doctors to charge over 30 cents per m., medicine included.

2d. It shall be unlawful for any doctor or doctors to drive from his office into the country to see a patient, and then go to see another patient, and charge each mileage from his office. Said doctor or doctors shall only be allowed to charge mileage from one patient to another.

3d. It shall be unlawful where a doctor or doctors does the practice of a family to charge for prescription.

4th. It shall be unlawful for any doctor or doctors to charge over $5 for any labor case, except when he has to take the child from the woman by pieces; then he shall only be allowed to charge $7.50.

5th. It shall be unlawful for any doctor or doctors to charge over $2 for examining any man or woman to find out the disorders about them at his office the first time, and only to charge $1 for examining thereafter, and when said doctor or doctors drives to see a patient he shall only be allowed to charge mileage.

6th. It shall be unlawful for any doctor or doctors to charge more than $10 for sewing up any woman's urethra, after having been torn while she was in labor.

7th. It shall be unlawful for any doctor or doctors to charge more than half fees where he practises on a patient and the patient dies.

8th. It shall be unlawful for any doctor or doctors to charge more than mileage to do lancing of any kind.

9th. It shall be unlawful for any doctor or doctors to charge over $10 for amputating an arm, or $20 for amputating a leg.

10th. It shall be unlawful for any doctor or doctors to charge over $25 for cutting any person open and taking abscesses out of them, and to cut any person open to examine their intestines to charge $15 only to cut out a tumor or abscess.

11th. It shall be unlawful for any doctor or doctors to charge more than mileage to dress a wound, and not to charge more than $5 to sew up an extreme cut except the abdomen wall, and then to charge $10 only.

12th. It shall be unlawful for any doctor or doctors when called in consultation to charge more than mileage.

13th. Whosoever sets himself up as a doctor or practises medicine as a physician or expert shall serve the public under all circumstances except when engaged or sick.

14th. Any doctor or doctors who violates the foregoing articles in any shape, or contracts for or receives for his services more than the foregoing article has set forth, shall be guilty of a misdemeanor, and upon conviction shall be fined $200 for each and every offence.

15th. Any doctor or doctors who violates the foregoing articles shall be tried as follows: Their case shall be reported to the Grand Jury, and said Grand Jury shall have the exclusive right to issue instanter capiases for witnesses; and if said Grand Jury finds a bill, it shall be the duty of the foreman of the Grand Jury to have said bill recorded in the clerk's office on the criminal docket the same day the bill is found, with his name signed at the bottom as foreman of the Grand Jury in his own handwriting, and said case shall be tried after this is done as all other State cases.

16th. Any solicitor who fails to prosecute said bill within six months after it is so recorded shall be guilty of high misdemeanor and shall be fined $1,000.

17th. Any solicitor who violates the sixteenth paragraph shall be tried as follows: It shall be the duty of the Grand Jury to look after their cases, and at the expiration of six months, if not prosecuted, the foreman of the present Grand Jury shall have the clerk of the court to read the bill so filed on his criminal docket by the foreman of the Grand Jury to the judge, and the judge shall impose a fine of $1,000, or five years in the penitentiary at hard labor, upon said solicitor. Said fine shall go to the said school fund in which county the offence was committed.

18th. It shall be the duty of the clerk of the court to see that the Grand Jury is provided with the above paragraph at every term of the court.

19th. Whenever any person is tried for disregarding any of the foregoing paragraphs, it shall be the duty of the clerk of the court to write down the judge's charge to the Travis Jury, and the foreman of the Travis Jury shall hear the judge's charge, and if the judge did not charge the jury right according to the above paragraph, it shall be the duty of the clerk to hand to the foreman of the Grand Jury present the judge's charge, and he shall report the same to the other members of the Grand Jury, and if they find the judge did not fully instruct the Travis Jury right, it shall be their duty to make out a true bill against the said judge, and they shall present it to the clerk of the court, and he shall have exclusive right to fine said judge $1,000, or five years in State penitentiary at hard labor; the above fine shall go to the school fund in the county in which the offence is committed.

20th. Whenever there is a case prosecuted and the prosecutor loses the case the State shall pay the costs, and where the prosecutor gains the case he shall have half the fines, the other half to go to the county school fund in which the offence was committed.

American Druggist

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EDITORIAL.

IN the report of the Dairy Commissioner of the State of New Jersey for the year 1890, just issued, the commissioner, Mr. George W. McGuire, and the chemist, Mr. Shippen Wallace, bestow some space upon the well-known Nux Vomica case. While we do not care to rehearse the whole subject, we yet desire to offer a few remarks or comments on some passages in the report. On page 18 we find the following:

> "The claim made by the proprietors of the article ['normal liquid'] in question, that a superior tincture can be had by adopting their formula, inasmuch as it contained the full alkaloidal strength of the drug, free from what they term its inert substances, led me to submit a few questions to a number of prominent physicians, chemists, and pharmacists, as to the therapeutic value of the non-alkaloidal portions of nux vomica, and whether or not a tincture containing 0.25 per cent of alkaloids and 0.4 per cent non-alkaloids would meet the *intent and spirit* [italics are our own] of the United States Pharmacopœia. The answers received were divided as to opinion, some indorsing the manufacturer's view, more opposing it on the ground that as no certain determination of the therapeutical value of the non-alkaloidal portions of the drug had yet been made, it was unwise as well as unlawful to deviate from the pharmacopœial formula, and that a tincture, such as referred to, clearly does not meet the intent and spirit of the Pharmacopœia. Be this as it may, it seems clear that the formulators of the prescribed method laid down in the United States Pharmacopœia for the preparation of tincture nux vomica must have recognized the therapeutic value of the extractive matter in the drug, and that it has a defined physiological action I believe most physicians will agree. Otherwise, tincture of nux vomica may as well be taken out of the medical books, and when the action of the drug is desired the physician can prescribe strychnia, which the druggist will find much more convenient to dispense."

We have reason to know that the commissioner was fully informed as to the reasons why the former Committee of Revision adopted the process and adjusted the strength of the tincture to 2 per cent of dry extract. It was *not* because they believed the extractive matter to possess any therapeutic activity, but simply because they had, in 1881, no better method, suitable for pharmacopœical use, to fix the strength of the preparation. Were the votes of the revisers of the Pharmacopœia of 1880 polled, it would most probably be found that four-fifths of them, at least, regarded the extractive, in this particular tincture, as inert.

They would *not* have been justified in substituting for this preparation an alcoholic or hydro-alcoholic solution of the alkaloids of nux vomica, since the profession of medicine had always been in the habit of prescribing the *tincture*, and the above-mentioned solution cannot be termed a tincture. We have no doubt such a solution will eventually become a substitute for the "tincture," but this cannot be done in advance of any distinct demand for it on the part of physicians.

Moreover, the opinions of physicians or other persons regarding the physiological activity or inertness of the "extractive" of nux vomica can have no real value unless it is based on proof. A positive proof was offered and presented to the court during the trial by two recognized authorities in materia medica and pharmacodynamics, who exhibited a pulse-tracing of an animal to which large quantities of this extractive had been administered. Not the slightest alteration could be detected in the pulse-tracings previous to and after the administrations.

The report continues:

> "The principle of having a definite strength for the most important drugs is undoubtedly a good one, and the publicity given to the above cases will in all probability result in good, since the United States Pharmacopœia is now in course of revision, and the attention of those engaged in this work has been called to the fact that many of the most deadly poisons have no definite strength laid down."

And later the following passage occurs in the analyst's report (page 29):

> "The mode of preparing it, as laid down in the United States Pharmacopœia, and the strength there given, give '2 per cent' dry residue. While the preparation is classed among the poisons, no strength for alkaloids is laid down, as is the case in the 'British Pharmacopœia.' In fact, the United States Pharmacopœia is sadly deficient [*sic*] in its requirements for the strength of a number of preparations. Certain manufacturing druggists have consequently, during the past few years, made what they term 'normal,' 'standard,' etc., preparations, by the use of which they claim uniform results may be had. The mistake is to claim that a United States Pharmacopœia preparation can be made [in this manner]. This was the case with the sample containing 0.618 per cent dry residue. It had been made from one of these preparations, and it was claimed to contain an alkaloidal strength of 0.25 per cent, and that it therefore complied with the *intent* of the United States Pharmacopœia. While it may be true that a preparation containing 2 per cent of residue will possess 0.22 per cent of alkaloids, it will also have non-alkaloids to the amount of 1.75 per cent, and whether these possess any therapeutical value is a question which 'doctors disagree' upon. . . . There is no difficulty in obtaining from the retailers a preparation which fulfils the *letter* of the United States Pharmacopœia standard, and, from the result of my examination, I do not doubt, also, the required alkaloidal strength."

It will be seen that great stress is laid upon the *letter* of the pharmacopœial text, and scarcely any upon the *intent*. While we acknowledge that, strictly speaking, both the letter and the intent of a law must be complied with, there are yet cases where only one of these is exactly known or understood, not to mention others where compliance with one involves disobedience to the other. The United States Pharmacopœia of 1880, or rather 1882, gave no alkaloidal strength or limitations in the case of nux vomica. And it need not be so slightingly spoken of in comparison with the British Pharmacopœia which appeared three years later (in 1885), and which had the advantage of utilizing all the literature which appeared in the interval, a very large portion of which was elicited by the appearance of the United States Pharmacopœia. Now, it cannot be doubted that the *intention* of the revisers was to obtain a tincture of nux vomica which would contain the amount of alkaloids naturally existing in the quantity of nux vomica used for any particular batch of the tincture. Truly, the text says nothing about the alkaloids. Consequently, to use the New Jersey analyst's own logic, the latter had really no call to inquire into the alkaloidal strength at all, for, as the Pharmacopœia does not require "Nux Vomica" by express statement to contain any alkaloids at all, no such requirement can be made of the tincture either. In fact, had the tincture been prepared from nux vomica *deprived entirely of alkaloids* (such as can be bought by the ton from manufacturers of strychnine), and had the analyst found it to contain 2 per cent of dry extract, the *letter* of the Pharmacopœia would have been complied with and the State would have had no case, although the tincture would have been absolutely inert. On the other hand, here we have a number of conscientious pharmacists who recognize the difficulty of making a good tincture of nux vomica containing what the physician has a right to expect in the matter of active constituents. Instead of making it in a haphazard or slipshod manner, as is no doubt often done, these pharmacists make it of a standard strength, so far as the active principles are concerned, and thereby infringe the *letter* of the law, most probably without knowing it. For, had they known the result, they could have added any kind of an extractive, whether from nux vomica or other sources, to bring the total up to 2 per cent. And who would have been benefited by this? Surely not the invalid who used the preparation.

We do not advocate any departure from official standards when there is no necessity. But there are cases when the true object originally aimed at can be reached by better ways than those laid down in the official text. In such cases a departure is permissible, all that is intended being to obtain preparations of the desired *medicinal* value and proportionate strength in *active* constituents.

The judge's decision says that "the process prescribed in that work [United States Pharmacopœia] was the standard of strength, quality, and purity of the article prepared. . . . The alkaloidal test since discovered may be a perfect register of strength, but it is clear that it is not a standard recognized."

The judge lays down a principle which we are afraid has not been regarded as such by others, but it is well to bear it in mind, since it may be quoted as an authoritative statement in a future case. The judge says that the *process* is the standard. Now, supposing the text of the Pharmacopœia gives not only a process, but also a description, with tests of strength. And further supposing that the process, if faithfully followed, should yield a preparation containing, say, 2 per cent of a certain definite chemical substance, while the test of strength should by mistake require it to contain 4 per cent. Here we have a decision settling the matter for New Jersey. The process is the criterion to go by; not the words of the text.

There are many more passages in the judge's decision which would form interesting schemes for discussion; but they would lead us too far at the present time. Only this we would say by way of conclusion: Evidently, to judge by the position taken by the prosecuting parties, any one selling tincture of nux vomica hereafter (until the next United States Pharmacopœia goes into effect), in the State of New Jersey, need only see that it contains 2 per cent of dry extract. Of course we hope that all will be conscientious enough to look to the alkaloids also. But the absence of alkaloids does not seem to be liable to become a cause for action, since the *letter* of the law says nothing about them.

AN alcoholic solution of nitroglycerin, of the strength of 1 per cent, has been long used in medicine, and was made semi-official in the National Formulary published by the Amer. Pharm. Association a few years ago. It has also been made official in Great Britain by being incorporated into the "Addendum" to the British Pharmacopœia recently published. In this country no difficulty is experienced in obtaining it. Wholesale drug houses usually procure it from factories of nitroglycerin by having it mixed at the factory with nine times its weight of alcohol, forming a 10-per-cent solution. This is not always correctly done, however. We have known several instances when the mixture was made at the factory by *measure*, which, of course, produces a very much more concentrated preparation. The National Formulary also gives an approximate method of verifying the strength of both the 10-per-cent and the 1-per-cent solution.

Our English confrères seem to be somewhat in doubt where they are to obtain the nitroglycerin with which to make the solution. The sale and disposal of nitroglycerin in England are now hedged around by so many laws that it is not easy to procure it. Mr. Rutherford Hill recently remarked, at an evening meeting of the Pharmaceutical Society, that some twelve years ago he had occasion to supply some of the solution to a physician. On writing to the manufacturers, they replied that they could not supply nitroglycerin without an order of the Board of Trade, and not even then in smaller quantities than a wagon load at a time. But he received a hint which carried him over the difficulty. He obtained several dynamite cartridges from a contractor, and suspended them in distilled water (as advised by Messrs. Nobel), whereupon the nitroglycerin slowly separated from the kieselguhr, and was then collected and dissolved in alcohol.

NEWS AND NOTES.

American Pharmaceutical Association.

TRANSPORTATION.

THE Committee on Transportation announce the following arrangements for the conveyance of the persons attending the meeting, and for their return to their homes; and in this connection the statement is offered that no effort has been spared to obtain the very best terms available. The rates secured are substantially as follows: From eastern points, viz., the New England States, and States of New York, New Jersey, Pennsylvania, Maryland, Delaware, and District of Columbia, the tourists' rate has been settled on; this means one full fare going and one-third fare returning. A similar rate has been fixed for the Southern States coming under the control of the Southern Passenger Commission, which includes most of the roads east of the Mississippi River. Special rates have been provided for the cities of Chicago, St. Louis, and Cincinnati, for which the excursion rate of a single fare for the round trip has been guaranteed.

The purchaser, on procuring his ticket at tourists' rates, will demand and receive a Convention certificate, which will be filled out by the ticket agent. This certificate, when indorsed at New Orleans by the member to whom the duty shall be assigned, will enable its holder to return over same route within five days from the last day of meeting by paying one-third of a single fare. Sleeping-car accommodations will be furnished by all the roads at usual rates, except when special rates can be secured.

Further particulars regarding fare, and day and hour of departure for meeting, etc., will be promptly obtained by communicating with the member of the Transportation Committee whose address is most convenient to applicant.

ACCOMMODATION.

Upon reaching New Orleans the visitors will be provided with quarters at the St. Charles Hotel, at the rate of $3 per day. The hotel is centrally located, and within five minutes' walk of Washington Artillery Hall, where the meeting will be held. This hall is the largest building of the kind in the city, and will afford ample accommodation for meeting and exhibition. Its proprietors will surrender the entire building to the use of the Association during the week beginning 25th of April, thereby affording exhibitors ample time to prepare their displays. Already a large proportion of the space has been secured, a result greatly due to the efficient labors of Mr. C. K. Hall, the member in charge of exhibitions. The headquarters of the Association will be at the St. Charles Hotel, the proprietor having offered every facility for the transaction of business, including a large parlor for use of nominating committee, and suitable rooms for other work.

ENTERTAINMENT.

The programme for the entertainment of the members will be arranged as follows :

Monday Evening—A reception, with music, dancing, and refreshments.

Tuesday Evening—A musical entertainment at Grunewald Hall.

Wednesday—Carriage drives.

Thursday, 9 A.M.—A steamboat trip on the Mississippi River, including a visit to Chalmette Cemetery and a stop at a large sugar plantation. This trip will occupy about four hours, and will afford an excellent view of the city front and its environs.

Friday Evening—Banquet.

New Orleans at the beginning of May shows nature in her brightest guise. The air is balmy and pleasant, and the temperature seldom rises above 80° Fah. The south wind prevails, freighted with the cool moisture of the adjacent Gulf, tempering the sun's warmth and making the night air delightful. The resident portion of the city presents many attractions. The rich alluvial soil yields its treasures in profusion; the verdure is luxuriant; the grounds are ablaze with flowers; the magnolia is then in bloom, and the jasmine and the rose unite their fragrance. The song of the mockingbird relieves the silence of the midnight hours. The city possesses many features to interest visitors. The French Quarter, with its old-fashioned styles of architecture, will recall many a scene made familiar to the reader in song and story. The strange sights incidental to the French Market, and the varied origin and nationalities of its venders, will well repay a visit. Half an hour's ride will bring the visitor to the margin of Lake Pontchartrain, a beautiful sheet of water of sufficient extent to sink its opposite shore from view. Metairie Cemetery will prove an interesting spot, with its beautiful grounds and its numerous monuments, and where the method of sepulture peculiar to this locality is employed. The city is well lighted with electric lights, supplied by what is considered the finest and most extensive plant in the country, and its manager kindly offers to this Association the privilege of inspecting the place. The river front will amply repay a visit, with its miles of continuous wharves, where great fleets of vessels are moored, discharging their cargoes or loading with the great export staples of the country. Audubon Park should be visited. Its magnificent groves of live oaks, its Horticultural Hall, and the Experimental Station for sugar culture and manufacture, will be well worth seeing. It is easy of access, being situated about three miles from the hotel, at the end of a splendid drive through the avenue, bounded on each side by numerous beautiful residences. There are many features of interest about New Orleans too numerous to mention in this circular, but which can be seen and enjoyed by the visitors. And last, but not least, comes the hearty welcome which will be extended to their friends by a people whose reputation for hospitality has been established since the foundation of their city.

Committee on Arrangement and Entertainment: Alex. K. Finlay, Chairman, New Orleans; P. W. Bedford, New York; C. K. Hall, New Orleans; Eug. Lalmant, New Orleans; L. F. Chalin, New Orleans.

Committee on Transportation: M. W. Alexander, Chairman, St. Louis; Thos. F. Main, New York; L. C. Hogan, Chicago; W. J. M. Gordon, Cincinnati; A. K. Finlay, New Orleans.

New Orleans, March 21st, 1891.

CHICAGO.

People in this snow-bound, "grip"-clutched climate are beginning to suspect that spring is to be eliminated from the calendar this year. The first "spring" month in the *almanac* was the first real winter month in point of *weather*, and the second is like unto it—yea verily, and more so. April has come in with the biggest kind of April "fool" for those who had hoped that with the exit of the March "lion," April would make her advent with a suggestion of spring lamb and green peas. The sharp wind that blows upon us from the ice fields of the Northwest is full of snow and pneumonia. March laid its deadly "grip" upon the people of this Western metropolis, and the closing week of that month surpassed all previous records of deaths from zymotic diseases in the same length of time. But four or five days of even *partial* sunshine in the month of March, and only one thus far in April, have dissipated the clouds and mist, and given even a temporary check to the ravages of the spores or bacilli that are supposed to produce the form of influenza known as the "grip." You may have noted, by the way, that a Chicago physician claims to have captured a genuine bacillus or microbe in the air, from which he and others are made confident that the bacillary theory is the correct one to account for the prevailing disorder. Whether there be anything in this of the nature of a scientific discovery, or whether, as some have facetiously suggested, that was only a wandering bacillus, and perhaps an emissary of the "Mafia," remains for future investigation to disclose. One thing, however, is sure—"spring, gentle spring," with its "ethereal mildness" and all that, *non ist inventus.*

Chicago, however, has not had a monopoly of this unseasonable weather. Very much the same climatic conditions have prevailed all over the Northern and Western States. As your correspondent came West over the New York Central Road, he noticed vast fields of ice in the Mohawk Valley, and along the immediate vicinity of the river itself great cakes of ice had been piled up by the sudden flood, which lifted the huge blocks from their resting places and carried them onward until some insuperable obstruction would pile "Ossa upon Pelion." That Mohawk Valley, by the way, is flooded every spring, and it is almost a wonder that anybody who can get away will live there.

Next to the weather, which has of necessity been a daily subject of comment, the druggists encountered by your correspondent through the West have been much interested in the discussions going on in the papers, and in special meetings of representative pharmacists, relative to the proposed plans for abating the evil of price cutting.

The mention of this subject may have somewhat the flavor of the "chestnut," and people can consume chestnuts *ad nauseam.* But the *ad-nauseam* stage is bound to come sooner or later. This statement is made in view of the fact that already some of those druggists who were loudest in their advocacy of certain plans for the abolition of the evil a few months ago are getting tired of the subject, and those drug journals that have devoted so much space to the suggestion and elaboration of plans are finding out that fully one-half of the druggists interviewed are sceptical as to the practical workings of any "coupon" or "rebate" arrangement on patent medicines, so long as the manufacturer himself lowers the price (and the profit) and persists in selling to the department stores, where the scalping business can be carried on without any limit.

Several pharmacists with whom your correspondent has conversed are of opinion that the ground taken by the **American Druggist** in its editorial of March 1st is the only correct and tenable one, and the feeling is growing in force that after all *there is no obligation* on the part of retail druggists to sustain the Hood Sarsaparilla Company, or, for that matter, any other manufacturer of patent medicines. This sentiment does not, of course, have reference to those manufacturers of such articles as are admitted, or that might with reasonable propriety be admitted, to a place in the Pharmacopœia, and that depend for their successful introduction upon the work and favor of the physician. This exception needs scarcely to be made here, as it is quite generally recognized, and the drug journal that is published on principles of equity accords to worthy manufacturers the same support it gives to all scientific workers.

The prevailing sentiment out through the West is that, so long as manufacturers of "patent medicines," "non-secret preparations," druggists' sundries, etc., treat the drug trade with due consideration by upholding the prices, and in other ways recognizing druggists as the proper dispensers of their goods, just so long will there be a community of interests, and *no kicking*.

At a large and enthusiastic meeting of the Chicago Retail Druggists' Association, held on Thursday, March 19th, to consider the different plans for our mutual protection, after a full discussion of resolutions offered by Mr. Wm. Bodeman, it was unanimously adopted to be the sense of the meeting to reinforce the position previously taken against the C. I. Hood & Co.'s plan, and also that the Association feels in duty bound to stand by the Tripartite Conference plan promising schedule prices, as well as to keep goods out of department stores and from all other cutters.

CANADA.

Fog, mist, drizzle, and occasionally a spasmodic attempt at a shower, the streets resembling peasoup, and crossings almost impassable, excepting where a sweeper with broom in hand retaliates for your intrusion on his domains by generously bespattering you with mud; to this add a woman or two with market baskets and a few mackintoshed men, and you have a characteristic picture of the streets in our Canadian towns. The bottom has completely dropped out of business, and even those merchants who have an A1 rating in Broad street are daily expecting some of their less fortunate brethren to go under, and by a "slaughter sale of bankrupt goods" make competition all the keener. Verily, now is the winter of our discontent. And I have a good digestion, and my liver is all right, too. Reports from Chicago and elsewhere rather encouraged us for a while, and we laid in a stock of antipyrin and other grippe remedies; but, with the exception of an isolated case or two of bad cold in the head, there is little demand for our wares. Last year everybody bought grippe medicine, even those who were well supplied themselves with prophylactics. But this year you can't talk a man into taking even an almanac with a place for memoranda and cuts of grateful patrons on each page. But signs of coming spring are becoming more and more marked, and each day the frugal druggist is busy renovating last year's stock of garden seeds and relabelling "Our Own" Liver Degenerator. The paste-pot virtuoso is out at early dawn decorating the closeboard fences and unoccupied brick walls with eulogies on Bogg's Monumental Nerve Restorer. Attractive notices in the daily papers tell how the handsomest man as well as the ugliest woman use Big "D"; and soda-water men are beginning to call our attention to the "Tallest and Prettiest," etc.

Confidence must rest in the bosoms of the brethren in the craft. Looking around the country, I see many a new store being fitted up for the spring trade, and the older ones having the patent-medicine hangers replaced with plate glass and gilt wall paper.

RECENT PATENTS, TRADE MARKS, AND LABELS.

ISSUE OF FEBRUARY 24TH, 1891.

Patents.

446,892.—Alizarine derivative, R. E. Schmidt, Elberfeld, Germany.

446,893.—Alizarine derivative, R. E. Schmidt, Elberfeld, Germany.

447,189.—Red dye, P. Julius, Ludwigshafen-on-the-Rhine, Germany.

446,875.—Compound of iodine with thymol, J. Messinger and G. Vortmann, New York, N. Y.

447,128.—Bifocal spectacles, G. H. Cline, Jersey Shore, Pa.

Trade Marks.

19,064.—Ammonia preparations for medical purposes, Chemische Fabrik auf Aktien (vorm. E. Schering), Berlin, Germany. Application filed October 10th, 1890. Used since September 12th, 1890. "The word 'Spermin.'"

19,077.—Certain named remedies, Catharine A. Purtle, Erie, Pa. Application filed October 25th, 1890. Used since May, 1890. "The word 'Jannock.'"

19,087.—Face powders and prepared chalk, Andrew S. Stiegerwald, Philadelphia, Pa. Application filed May 29th, 1890. Used since March 1st, 1890. "The words 'Actresses' Favorite.'"

19,092.—Pale Orange Bitters, John Henry Membrey, London, England. Application filed January 13th, 1891. Used since 1859. "The representation of a red lion with the name 'Pale Orange Bitters' and the fac-simile signature in red of 'Field, Son & Co.'"

19,094.—Perfumery, soaps, washes, and lotions, William S. Thomson, London, England. Application filed January 27th, 1891. Used since May 3d, 1890. "The word 'Karilpa.'"

19,097.—Liniments for the cure of rheumatism, neuralgia, gout, and similar ailments, John H. Blume & Co., Walhalla, Texas. Application filed October 28th, 1890. Used since August, 1890. "The word 'Cherokee.'"

19,101.—Suppositories for female diseases, Victor Medical Association, South Bend, Ind. Application filed December 9th, 1890. Used since January 15th, 1887. "The words 'Wild Olive and Myrtle Tonic' and the representation of a lion's head."

ISSUE OF MARCH 3D, 1891.

Patents.

447,695.—Anti-snoring bandage, A. Mosterts, Strassburg, Germany.

447,514.—Gelatin capsule, S. E. Heineman, Detroit, Mich.

447,302, Orange dye, and 447,303, Violet dye, C. Duisberg, Elberfeld, Germany.

447,605.—Vessel holder for druggists' use, J. C. D. Curtiss, Rochester, N. Y.

447,574.—Syringe-tube sinker, D. B. Martin, New Haven, Conn.

447,410.—Vaginal syringe, L. D. McIntosh, Ravenswood, Ill.

447,378.—Truss, H. C. Stickney, St. Louis, Mo.

Trade Marks.

19,110.—Line of proprietary medicines, Roswell Van Buskirk, Newark, N. J. Application filed January 2d, 1891. Used since 1880. "The word 'Paustic.'"

19,112.—Remedy for coughs, colds, and like diseases, Ellsworth S. Beshore, Pottstown, Pa. Application filed January 28th, 1891. Used since November 1st, 1890. "The words 'One Night Cough Cure.'"

19,114.—Ointment, Thomas F. Christman, Greenville, N. C. Application filed January 23d, 1891. Used since January, 1887. "A monogram composed of the letters 'T F C.'"

19,116.—Emulsions, Gulick & Co., Terre Haute, Ind. Application filed January 28th, 1891. Used since November, 1889. "The word 'Glycolein.'"

19,120.—Veterinary remedies, John E. Jayne, De Witt, Mich. Application filed January 27th, 1891. Used since January 1st, 1891. "The monogram-symbol 'J E J.'"

19,121.—Remedies for diseases of the throat and lungs, Alfred O. Kring, St. Louis, Mo. Application filed January 30th, 1891. Used since November 1st, 1890. "The word 'Anticof.'"

19,122.—Remedy for diseases of the throat and lungs, Charles Leslie & Co., St. Louis, Mo. Application filed January 19th, 1891. Used since July 1st, 1890. "The words 'Leslie's Coughine.'"

19,123.—Internal and external remedy for skin diseases, P. A. Mandabach, Columbus, Ohio. Application filed December 24th, 1890. Used since February 15th, 1890. "The word 'Kaloderm.'"

19,130.—Remedy for rheumatism and kindred ailments, Morris Rosenberg, Philadelphia, Pa. Application filed January 21st, 1891. Used since December 9th, 1890. "The words 'French Oil' associated with the representation of a man seated in a chair, having one limb exposed, which is being rubbed by a female nurse kneeling on the floor and having at her side a bottle having a label thereon, on which appear the words 'French Oil.'"

19,142.—Cough syrup and cough drops, Francis A. Robbins, Nahant, Mass. Application filed January 22d, 1891. Used since December 1st, 1890. "The representation of a child and dog."

19,147.—Plasters and salves, Catherine A. Staab, Cleveland, Ohio. Application filed January 28th, 1891. Used since March, 1890. "The words 'St. Benedict Wonder Plaster' and the representation of a saint."

Labels.

6,465.—Title: "Henry Ost's Prepared Castor Oil," Henry Ost, Newark, N. J. Application filed February 7th, 1891.

6,466.—Title: "Eldredge's Cough Remedy," J. B. Eldredge & Co., Bridgeport, Conn. Application filed February 9th, 1891.

6,467.—Title: "Non-Alcoholic Extract of Vanilla," Alexander C. Howell, Hackettstown, N. J. Application filed January 29th, 1891.

ISSUE OF MARCH 10TH, 1891.

Patents.

448,128.—Body battery and attachments for the same, J. A. Crisp and G. F. Webb, Jefferson, Ohio.

447,926.—Obtaining bromine and iodine, H. H. Wing, Buffalo, N. Y.

447,857.—Galvanic apparatus for the human body, P. G. Williams, Brooklyn, N. Y.

447,811.—Gymnastic apparatus, C. H. Dinkelman, St. Louis, Mo.

447,823.—Laryngoscope and tongue depressor combined, G. Henckel, Chicago, Ill.

447,870.—Obstetrical harness, W. A. Conant, Paw Paw Grove, Ill.

447,761.—Speculum, W. E. Clough, Oxford, Ohio.

448,133.—Suppository mould, E. L. Cushing, Albion, N. Y.

448,150.—Surgical explorer, F. K. Hesse, Boston, Mass.

Trade Marks.

19,151.—Soap, perfumery, cosmetics, and like toilet preparations, William S. Thomson, London, England. Application filed January 27th, 1891. Used since January 1st, 1890. "The word 'Cucumber.'"

19,152.—Remedy for epilepsy and other nervous diseases, Samuel Allen Richmond, Tuscola, Ill. Application filed January 28th, 1891. Used since July, 1884. "The pictorial representation of a figure of a man standing upright and showing the venous system."

19,154.—Remedy for the cure of catarrh, Peter M. Hunt, Pittsburg, Pa. Application filed October 4th, 1890. Used since April 26th, 1890. "The portrait of the registrant with the fac-simile signature 'P. M. Hunt.'"

19,160.—Certain named dietetic products, Gesellschaft für Fabrikation Diätetischer Produkte, Ed. Loeflund & Co., Stuttgart, Germany. Application filed October 23d, 1890. Used since August 26th, 1875. "The representation of a shield and a monogram therein composed of the letters 'L L.'"

19,161.—Kidney, liver, and bladder remedy, Dr. Kilmer & Co., Binghamton, N. Y. Application filed February 11th, 1891. Used since December 1st, 1890. "The representation of a rooster."

19,162.—Medicated wine, P. Lebeault & Co., Paris, France. Application filed February 3d, 1891. Used since 1871. "The words 'Vin de Bugeaud.'"

19,163.—Medicated wine, P. Lebeault & Co., Paris, France. Application filed February 3d, 1891. Used since 1871. "The representation of an alembic and the signature 'Bugeaud' in fac-simile."

19,164.—Medicated wine, P. Lebeault & Co., Paris, France. Application filed February 3d, 1891. Used since 1871. The signature 'Lebeault et Cie' in fac-simile."

19,165.—Remedy for toothache, neuralgia, and other nervous diseases, William Tack, Hilton, N. J. Application filed February 4th, 1891. Used since June, 1885. "The word 'Den-Tholine."

19,169.—Hair restoratives, Charles H. Pape, St. Louis, Mo. Application filed February 3d, 1891. Used since 1865. "The words 'Spiritus Capilli' and the portrait of Dr. Pape."

19,170.—Certain named remedies, Protection Papier Co., Philadelphia, Pa. Application filed January 28th, 1891. Used since July, 1890. "The word 'Protection.'"

Labels.

6,472.—Title: "Directions for Using Clevenger's Hair Balsam," Clevenger Hair Balsam Co., Minneapolis, Minn. Application filed March 28th, 1890.

6,473.—Title: "Syrup of Prunes" (for a medicine), E. H. Bindley & Co., Terre Haute, Ind. Application filed February 11th, 1891.

6,474.—Title: "Dr. Groves' Anodyne for Infants," John D. Groves, Philadelphia, Pa. Application filed February 13th, 1891.

ISSUE OF MARCH 17TH, 1891.

Patents.

448,276.—Spectacle or eyeglass shade, J. F. Strange, New Bedford, Mass.

448,305.—Exercising machine, A. I. Thayer, Newark, N. J.

448,350.—Single delivery pill box, F. Koch, Berlin, Germany.

448,353.—Exercising apparatus, F. Medart, St. Louis, Mo.

448,361 and 448,362.—Manufacturing and preparing nitrate of ammonia, R. S. Penniman, Dover, N. J.

448,541.—Making iodine by electrolysis, T. Parker and A. E. Robinson, Wolverhampton, England.

448,555.—Medicine dropper, F. B. Spooner, Brooklyn, N. Y.

Trade Marks.

19,195.—Hair tonic, Edmund J. Hickey, Augusta, Ga. Application filed January 30th, 1891. Used since May 16th, 1890. "The word 'Hairaline.'"

19,197.—Hair tonic, William P. T. Ragio, Nashville, Tenn. Application filed October 17th, 1890. Used since July 1890. "The word 'Ragio's' above a circular disc bearing the representation of a dressing-case or bureau with crossed comb and shears before it."

19,199.—Embrocation for rheumatism, neuralgia, and similar ailments, Eugene Wunsch, Cincinnati, Ohio. Application filed February 4th, 1891. Used since September, 1890. "The words 'Martha Washington Liniment,' and the portrait of Martha Washington."

Labels.

6,475.—Title: "G. L. McGreevy's Compound Tonic," George L. McGreevy, Baltimore, Md. Application filed February 21st, 1891.

SALESMEN EMPLOYED BY JAMES W. TUFTS, BOSTON, MASS.

SALESMEN

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1. J. W. Sutton.
2. P. J. Maguire.
3. W. P. Adams.
4. B. H. Westervelt
5. John Macksey.
6. G. W. Byther.
7. E. E. Ellsworth.
8. W. P. Niles.
9. J. O. Wild.
10. J. O. Ball.
11. M. M. Ellsworth.
12. John McClosky.
13. F A. Partridge.
14. J. S. Carroll
15. W. F. Hazleton.
16. F. L. Favor.
17. W. S. Stone.
18 B F. Stoneberger.
19. J. S. Briggs.
20. A. S. Ellsworth.
21. J. F. Lazier
22. F. L. Ballou.
23. A. A. Warren.
24. J. M. Grout.
25. T. D. Woolley.
26. Geo. Sturges.
27. J. F. Winn.
28. G. F. Fosdick.
29. F. C. McKenna.
30. H. A. Separk.
31. D. I. Thornton.
32. S. K. Furstenberg.
33. J. R. Fuqua.
34. H. Zehrung.
35. J. Zehrung.
36. J. H. French.
37. Burton Adams.
38. O. J. Price.
39. S. P. Morden.
40. C. B. Thomas.
41. G. C. Norcross.
42. J. F. Hinds.
43. W. B. McOwen.
44. R. H. Hunstock.
45. H. E. Feldman.
46. E. M. Vorce.
47. J. C. Beach.
48. D. T. Lee.
49. M. N. Bull.
50. I. F. North.
51. G. J. Becht
52. J. F. Williams.
53. W. E. Tufts.
54. R. W. Walker.
55. T. D. Clapp.
56. T. W. Ayer.
57. W. J Humphreys.
58. W. M. Frink.

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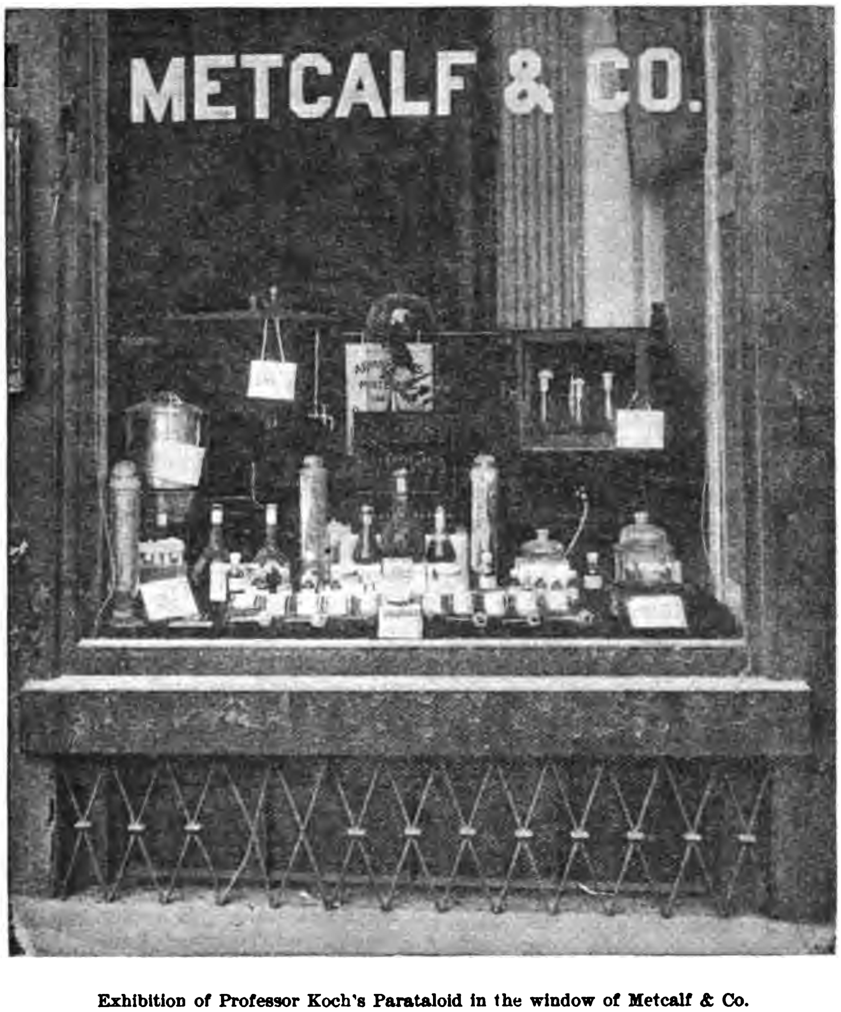
AN INTERESTING WINDOW.

We illustrate herewith a form of window decoration which we have often urged upon the attention of our readers, but which is still too rarely used for their advantage.



Exhibition of Professor Koch's Parataloid in the window of Metcalf & Co.

In the latter part of January Mr. Edwin W. Shedd, who has the management of the laboratory of Theo. Metcalf & Co., of Boston, arranged a window to illustrate the methods of germ culture, with special reference to Prof. Koch's lymph for treating tuberculosis, and the result attracted general attention and secured an illustrated notice in a local newspaper of a most satisfactory character. Messrs. Metcalf & Co. have kindly complied with our request for a photograph of this interesting display and a description of its details, which we hope may stimulate others to its imitation. The pharmacist need not wait for something else of like general interest, for it will not be likely to occur again soon; but there are many things connected with his daily business which would instruct the public, and at the same time increase their respect for the knowledge and skill of the proprietor of the establishment. Take so simple a thing as a glass bottle. What a display could one make of bottles in every-day use and of those which are out of vogue! Big and little, all shapes, sizes, and colors—a window could not hold them, yet how they would shine and catch the eye of the passing customer and set him to thinking! Take any one of the pharmaceutical processes—percolation, for example, or pill-making, or plaster-spreading, and how many would stop to see a tincture made, and the many things which are accessory to it from crude drug to finished product. Take a prescription, and starting with a bit of paper with the hieroglyphic writing of some well-known local practitioner as a centrepiece, assemble about it the crude drug, commercial products, testing, pharmaceutical and dispensing apparatus, the various stages of its composition, container, label, cork, and finished article, and the money which is expected as its equivalent, and what an education it would be for the man who wonders why he has to pay so much [?] for his medicine!

To return to a description of the window in question:

In the front of the window is a row of genuine Koch syringes, consisting of a graduated glass tube with ground ends to which are attached the rubber bulb and needle; the syringe is also provided with a stop-cock. This arrangement permits of the syringe being easily sterilized. Behind these is seen a line of mailing cases containing glass bulbs ready for shipment. Each package contains ten bulbs, each holding from 1 to 10 Mgm. of the tuberculin in a 1-per cent solution, and is sealed with a slip bearing the label illustrated on the following page.

In the rear of these cases, and directly in front of the flask, may be seen a small box, which is an original package of Koch's material, and is the first package of unrestricted lymph to arrive in Boston. This package was sent to Dr. Achorn Pomeroy, from whom it was received for dilution.

Then comes a flask of nutrient agar-agar used as a culture medium for studying the development of micro-organisms; a card bearing the words, "Koch's Lymph," composed of bulbs of the diluted lymph, and in the extreme back of the window a microscope under a glass bulb.

Koch's Material

Synonym:—Parataloid, Tuberculin.

This package consists of bulbs, each containing about C.c. of a one per cent solution, prepared from the genuine material received from Prof. Libbertz. Guaranteed genuine when bearing the signature of

On the right of the microscope, and still at the rear of the window, is seen a double-walled, sheet-iron sterilizer for sterilizing flasks, tubes, glass, plates, etc., by subjecting them to a temperature of 150° C. for about half an hour.

On the left is a brooder culture oven for keeping culture at a constant high temperature. It consists of a double-walled vessel, covered with felting, and provided with a thermo-regulator. Directly in the front of this latter piece of apparatus is an Arnold steam sterilizer, which we have found to be the best suited for sterilizing small quantities of culture media, etc., being very quickly raised to a boiling temperature.

Then in the front of the window, on the left, are flasks of nutrient gelatin, of which only the cotton plugs are visible in the photograph.

Distributed around, back of the boxes of bulbs, are bottles of the various staining and hardening fluids used in studying bacteria.

In the front of the window, on the right, is a levelling and cooling apparatus for use in making plate cultures. It consists of a triangle of wood with levelling screws, then of an outer glass dish, an inner dish filled with ice water, and then a glass plate. On this plate is placed the slide for the culture, which is covered with a glass cover. While this slide is cooling the tube of gelatin or agar is melted and inoculated, and then, the cover being removed, the contents are poured upon the slide, when they immediately solidify, the plate being made level by means of the screws. The layer of gelatin is of uniform thickness.

The tall jars contain various grades of gelatin and agar used in preparing the respective culture media.

Estimation of Nitric Acid by Reduction to Ammonia.

THE following is Prof. A. Stutzer's method, reported, in connection with a note on aluminium as a reducing agent, in the *Zeitsch. f. angew. Chem.* (1890, No. 23):

The solution, containing an amount of nitric acid equivalent to about 0.5 Gm. of nitrate of potassium [that is, about 0.33 Gm. of HNO_3], and measuring 50 C.c., is introduced into an Erlenmeyer flask, mixed with 100 C.c. of water and 20 to not exceeding 25 C.c. of solution of caustic soda of specific gravity 1.208 (about 14 per cent NaOH), and then 2 to 3 Gm. of metallic aluminium, in form of sheet, added. The mixture is allowed to stand over night and the generated ammonia distilled off next morning. Owing to the constant evolution of hydrogen, it is necessary to connect the flask, in which the reaction takes place, with the condenser immediately after the aluminium has been added, else some ammoniacal vapors may be carried over with the ammonia. Of course it will be understood that the condensing tube must be made to dip into a receiver containing a measured quantity of volumetric acid.

For practice or for checking results a standard nitrate solution is made by dissolving 10 Gm. of pure potassium nitrate in 1 liter of water.

[ORIGINAL COMMUNICATION.]

DETECTION OF METALS IN COMPLEX MIXTURES.

BY

CLAUDE C. HAMILTON, M.D., PH.G.,

Demonstrator of Chemistry in the University Medical College, and Kansas City College of Pharmacy; Professor of Chemistry in the Western Dental College of Kansas City, Mo.

THERE are many drawbacks to the use of our tables for qualitative analysis among druggists. Such are the "dry process," the separation of iron by fusion with potassium nitrate, etc. The pharmacist will find the opposite table quite sufficient for his work, and requires only test tubes, an evaporating dish, and a piece of platinum foil and wire, in addition to the reagents mentioned, which are in almost every drug store. After finding the metal, refer to a solubility table and test only for those salts which are soluble in water if the substance for analysis was soluble, or for those salts insoluble in water if the substance was insoluble. Say, for example, that we find the metal to be zinc; turning to a solubility table in any of our text books, we find the following salts of zinc are soluble in water: sulphate, chloride, acetate, and nitrate; then applying the proper tests, find this salt to be a sulphate. Our conclusion then is that the substance was sulphate of zinc.

If the metal should be potassium (K), sodium (Na), lithium (Li), or ammonium (NH_4), a grouping of the acids must be followed, as most of the salts of these metals are soluble in water. Those laid down in Attfield's or Muter's chemistry will be found satisfactory.

The name for each formula is given under its corresponding number at the foot of the table. After finding a metal by this or any other table, apply tests for it to the original solution.

Spurious Cubebs.

ACCORDING to the *Chemist and Druggist*, spurious, and perhaps also exhausted, cubebs are on the market again in considerable quantity. Some time ago an Amsterdam firm actually made an offer to English houses to sell them "spurious cubebs for druggists' use." Samples of these were obtained, and were found to be very small and shrivelled, containing many stalks, and not giving the crimson reaction with sulphuric acid which is characteristic of immature cubebs. It was thought that they had been partly deprived of oil. Yet, shortly afterward, 60 bags of exactly similar berries were received directly from Singapore, and every one of these was rich in oil. Altogether 150 bags of spurious cubebs were imported into Amsterdam last year, and were sold at 3s. per pound. They were all exported from the east coast of Java.

The Reddening of Carbolic Acid.

E. FABRINI announces that the cause of the reddening of carbolic acid is the presence of a peculiar red coloring matter, phenerythen, which can be identified by a characteristic reaction towards sulphuric acid.

Ten or 12 C.c. of *pure* sulphuric acid are put into a test tube, and upon it is placed, with the greatest caution, a layer of carbolic acid so as not to disturb the sulphuric acid layer. The test tube is then set aside, and another one filled with the carbolic acid alone, for the purpose of easy comparison.

A Table for the detection of Metals in Complex Mixtures, being limited to Salts commonly used, or included in the Pharmacopœia of the United States of America.

First Group.—Add a drop of **HCl**, and if it produce a precipitate, add excess and *filter*.

<table>
<tr>
<td colspan="3">PRECIPITATE.
Ag, Hg(ous), Pb.
Vash, boil with H_2O, filter.</td>
<td colspan="16">**2d Group.**—To the filtrate add H_2S *water*, and if it produces a *discoloration*, warm, pass H_2S in excess, and *filter*.</td>
</tr>
<tr>
<td rowspan="6">il- ate. dd K_2- rO₄. llow reci- itate =Pb ead).</td>
<td colspan="2">PRECIPITATE.
Wash, add NH_4HO, filter.</td>
<td colspan="5">PRECIPITATE.
Wash with *boiling* H_2O, digest with 20 drops of NH_4HS, and *filter*.</td>
<td colspan="11">**3d group.**—To a portion of the filtrate add NH_4HO, NH_4Cl, and NH_4HS. *If no precipitate, pass on to Group IV. If a precipitate,* evaporate the remainder of the filtrate to dryness and heat till organic matter is destroyed. Dissolve the residue in boiling HNO_3, then add NH_4Cl and NH_4HO. *Filter.*</td>
</tr>
<tr>
<td rowspan="5">PRECIPITATE.
Black= **Hg**(ous) (Mercurous).</td>
<td rowspan="5">FILTRATE.
Add HNO_3 White precipitate =**Ag** (Silver).</td>
<td colspan="3">PRECIPITATE.
Hg(ic), Bi, Pb, Cu, Cd.
Wash, boil with HNO_3, and add H_2SO_4 and *alcohol*.</td>
<td colspan="2">FILTRATE.
As, Sb, Sn.
Add HCl, wash the precipitate, then add $(NH_4)_2CO_3$ and *filter*.</td>
<td colspan="3">PRECIPITATE.
Cr, Fe, Ce, Al, Ca_32PO_4.
Wash, dissolve in HCl, add $NH_4C_2H_3O_2$ and Na_2HPO_4 and boil.</td>
<td colspan="8">**Filtrate.**—Add NH_4HS, boil and filter.</td>
</tr>
<tr>
<td rowspan="4">PRECIPITATE.
Black= **Hg**(ic) (Mercuric).
Boil with $NH_4C_2H_3O_2$, decant, and add K_2CrO_4 to the filtrate. Yellow precipitate =**Pb** (Lead).</td>
<td colspan="2">FILTRATE
Bi, Cu, Cd.
Add NH_4HO and *filter*.</td>
<td rowspan="4">FILTRATE.
Add HCl. Yellow precipitate =**As** (Arsenic).</td>
<td rowspan="4">PRECIPITATE.
Sn, Sb.
Dissolve in strong HCl, introduce into an evaporating dish with a piece of *platinum* and a rod of *zinc* so held as to touch each other outside the liquid. A granular deposit = **Sn** (Tin).
A black stain on platinum = **Sb** (Antimony).</td>
<td colspan="2">PRECIPITATE.
Wash, and boil with KHO.</td>
<td rowspan="4">FILTRATE.
Green =**Cr** (Chromium) Add $(NH_4)_2C_2O_4$. White precipitate = Ca_32PO_4 (Calcium phosphate).</td>
<td colspan="3">PRECIPITATE.
Ni, Co, Mn, Zn.
Wash, add dilute HCl, and filter.</td>
<td colspan="5">**4th Group.**—Add $(NH_4)_2CO_3$ and *filter*.</td>
</tr>
<tr>
<td rowspan="3">PRECIPITATE
Bi(Bismuth)</td>
<td rowspan="3">FILTRATE.
Blue= **Cu** (Copper). If not blue, add NH_4HS. A yellow precipitate =**Cd** (Cadmium). If blue add **KCy** and H_2S. A yellow precipitate =**Cd.**</td>
<td rowspan="3">PRECIPITATE.
Dissolve in HCL, and to a portion add **KCyS**. A deep red color = **Fe** (Iron).
To another portion add citric acid and NH_4HO. A white precipitate = **Ce** (Cerium).</td>
<td rowspan="3">FILTRATE.
Add excess of acetic acid. White precipitate = **Al** (Aluminium).</td>
<td rowspan="3">PRECIPITATE.
Black=**Ni** (Nickel).</td>
<td colspan="2">FILTRATE.
Add $NaHO$ and filter.</td>
<td colspan="3">PRECIPITATE.
Ba, Sr, Ca.
Dissolve in *acetic acid* and add K_2CrO_4.</td>
<td colspan="2">**5th Group.**—Add Na_2HPO_4 and filter.</td>
</tr>
<tr>
<td rowspan="2">PRECIPITATE.
Mn (Manganese).</td>
<td rowspan="2">FILTRATE.
Add acetic acid and K_4FeCy_6. A gelatinous precipitate=**Zn** (Zinc).
Test for cobalt by borax lead</td>
<td rowspan="2">PRECIPITATE.
Ba (Barium).</td>
<td colspan="2">FILTRATE.
Add H_2SO_4 and filter.</td>
<td rowspan="2">PRECIPITATE.
Mg (Magnesium).</td>
<td rowspan="2">Boil the original solution with KHO. An odor of ammonia gas =NH_4(Ammonium).
Dip a platinum wire in the original solution and hold it in the non-luminous flame of a Bunsen burner or alcohol lamp.
A yellow flame=**Na** (Sodium).
A violet (best seen by looking through blue glass) =**K**(Potassium).
A crimson flame =**Li** (Lithium).</td>
</tr>
<tr>
<td>PRECIPITATE.
Sr (Strontium).</td>
<td>FILTRATE.
Add NH_4HO and $(NH_4)_2C_2O_4$. Precipitate= **Ca** (Calcium).</td>
</tr>
</table>

The following names for some of the symbols found in the table may aid the memory.

l—Hydrochloric acid.
CrO₄.—Potassium chromate (yellow).
HO—Ammonium hydrate.
S—Hydrosulphuric acid, or sulphuretted hydrogen.

H_2O—Water.
NH_4HS—Ammonium sulphydrate.
HNO_3—Nitric acid.
H_2SO_4—Sulphuric acid.
$NH_4C_2H_3O_2$—Ammonium acetate.

KCy—Potassium cyanide.
$(NH_4)_2CO_3$—Ammonium carbonate.
NH_4CO—Ammonium chloride.
Na_2HPO_4—Sodium phosphate.
KHO—Potassium hydrate.

$KCyS$—Potassium sulphocyanate.
$(NH_4)_2C_2O_4$—Ammonium oxalate.
$NaHO$—Sodium hydrate.
K_4FeCy_6—Potassium ferrocyanide (yellow prussiate).

Mango and Mango Preserves.

THE mango (*Mangifera Indica*) is the best fruit in India, as highly valued as the peach with us, and forms a considerable portion of the food of large classes of the native inhabitants. The varieties cultivated are about as numerous as are those of the apple. An Indian gentleman has made colored illustrations of more than two hundred varieties of this fruit. The quality is difficult to judge of from external appearance. There are large and small, elongated and abbreviated, bright orange-colored and green. They vary much in taste, some being of the flavor of honey, some of pineapple, some of orange, while others have distinct flavors of their own. A good mango should be as little stringy as possible, and should not have too much of the turpentine flavor toward where it is attached to the foot stalk; a moderately aromatic savor there is by no means objectionable.

The young unripe fruits are largely consumed in India in tarts, etc., and mango "fool" there takes the place of gooseberry fool. The half-ripe fruits are also made into a marmalade which much resembles that of apples.

So large is the consumption of this fruit in India that wagon loads, bringing collectively 20 tons of the fruit, have entered the island of Bombay in a single day. The fruit of the finest mangoes has a rich, sweet, perfumed flavor, accompanied by a grateful acidity.

The thick juice is by the natives of India squeezed out, spread on plates, and allowed to dry in order to form the thin cakes known as *amsatta*. The green fruit is sliced and cooked in curry; is made into pickle with salt, mustard, oil, and chillis, and also into preserves and jams by being boiled and cooked in syrup. Some varieties of mango have fruits as big as an infant's head, ovate, with a golden skin, speckled with carmine, and with a greengage flavor.

The finest varieties of this almost unequalled fruit seem to thrive in Jamaica (where it was introduced about a century ago), as well as in Bombay. It is the popular fruit there with the negroes.

The Siam mango is a tolerable kind, which sometimes grows to 1 pound weight. The egg mango is a small, yellow kind, with too much of the turpentine flavor and too acidulous to be much prized. The horse mango is a very coarse fruit of unpleasant odor, much eaten by the lower classes, and producing cholera, diarrhœa, and dysentery. The Bombay mango, termed "Parsee," is known for its lusciousness and delicacy of flavor, the absence of fibre, firmness of flesh, thinness of skin, and small size of the stone. It must, however, be admitted that on tasting this delicious fruit for the first time a slight turpentine flavor is experienced.—From an article on "Indian and Other Preserves," in *J. Soc. Arts* and *Pharm. J.*

Spectacles Older than Christianity.

PERHAPS it is known to few people only that the use of spectacles can be traced back as far as two thousand years. The Emperor Nero, who was short-sighted, used concave glasses to enable him the better to watch the gladiators. Up to the thirteenth century only single glasses, such as are now known as reading glasses, were known, and the invention of the two-eyed spectacles falls somewhere about the year 1290. In an epitaph found at Florence, one Salvino degli Armati is credited with the invention, but other authorities ascribe it to the monk Alexander von Spina. In the fourteenth century spectacles were fairly common, and, as they were considered precious, were often specially mentioned in ancient testaments. Frequently a kind of beryl was used in place of glasses; hence the German name "brille." The manufacture of spectacles was at first carried on in Italy, afterwards at Middleburg, in Holland, but as early as 1482 we have spectacle makers mentioned at Nürnberg. After a while the use of spectacles became fashionable in Spain, and no doubt many a one at the present time who carries the appendage of eyeglasses does so more for appearance than actual need of assistance to the eye.

Uncle Sam Outwitted by a Chinaman.

A SCHEME has just come to light in San Francisco whereby a sharp Chinaman swindled the United States Government out of some $30,000 revenue. It is the custom there, when goods are imported, to take to the Appraisers' Store 10 per cent of them, from which the total duty is to be calculated. The Custom House broker has to file a bond of $400 for the payment of duty, and the owner is then allowed to take the other nine-tenths to his place of business. On January 1st, this year, a Chinaman went through this routine, leaving 10 per cent of a large shipment of opium with the Appraiser. Now that he is wanted to pay the duty he cannot be found. As the duty on the full amount of opium he imported will be about $35,000, and 10 per cent left by him is only worth $3,500, he makes a clear profit of over $30,000.

Plucking the Ostriches.

THE plucking at an ostrich farm is a very novel sight, and those present are well paid for their journey to witness it. The preliminary tussle, in which the bird which is to undergo the ordeal is captured, is the most exciting part of the performance. After he is caught and a sack placed over his head, he becomes as manageable as a kitten; but to catch him it takes four and sometimes five men, so great is his strength. They have twenty-nine birds at the farm, besides two Australian emus, monkeys, parrots, elk, bear, badgers, wildcats, etc. In speaking with one of the attendants your correspondent learned that they clear about $100 per bird yearly. The place is well kept and well worth a visit by tourists who visit this locality.—*Los Angeles Express*, Santa Monica Letter.

"Skunk's Ile Had Riz."

YOUR remarks on the McKinley bill, used as a pretext by retail dealers and drummers for high prices, recall to me a story told by a druggist in Hartford, Conn. He had been in the habit, year after year, of buying skunk's oil of an old countryman, for the oil of that unpleasant animal is considered by some persons a medicament of great power. During the war, as we who are old enough sadly remember, prices were literally "war prices" on almost everything. "Bill" prices they would be called now. One day the aforesaid old man from the country entered Mr. McN.'s shop.

"Fetched ye some skunk's ile!" setting down a jug on the counter.

"All right, sir; how much did you bring?"

The old man told the measure and McN. counted out the usual price.

"'Taint enough," curtly remarked the old farmer.

"Why, this is what we always pay."

"I know't. But skunk's ile has riz."

"Animals got scarce?"

"Land, no! They're thicker 'n huckleberries; but skunk's ile has riz."

"Have you been unlucky about catching them?"

"Never catched so many in all my born days, but I tell ye skunk's ile has riz!"

"But I don't see any reason for it; it should rather be lower."

"I don't care a darn if you don't. I ain't nobody's fool. Everything else has b'en a-risin', and I tell ye, once for all, skunk's ile has riz!"

The argument was conclusive.—R. T. C., in the *New York Tribune*.

Cement or Paste.—According to Winchell, a superior cement or paste may be prepared as follows:

Gum Arabic	4 parts
Starch	3 "
Sugar	1 part
Water	q. s.

Soak the gum in water, using such a quantity that it is sufficient also for the gelatinization of the starch and the solution of the sugar. [The exact quantity is not stated, being evidently left to the judgment of the person who desires to use the cement.] When the gum is thoroughly soaked or dissolved, add the starch and sugar, and heat on a water bath. The cement has the consistence of tar and retains this also when cold. It is best preserved by adding to it a little oil of sassafras.

This cement may be used generally also upon objects with polished surface; likewise for cementing together broken porcelain, minerals, etc.—After *Chem. Centralbl.*

CALDWELL'S LABORATORY STAND.

This stand takes the place in my student laboratory of filter stands, lamp stands, and burette stands; one stand serving two students working on opposite sides of the table, and carrying also a shelf long enough to hold four bottles for the reagents most commonly used in quantitative work, such as ammonia and the acids.

It is entirely of iron, and consists of a post, with a round base about four inches in diameter and a quarter of an inch thick, from which the post proper rises to the height of about 18 inches; this post carries six arms 15 inches long, three of which can revolve towards the student working on one side of the table, while the other three revolve only in the opposite direction. Above these arms is the short reagent shelf referred to. Four of the arms (two for each side of the table) carry iron rods which can be held at any height by the thumb screws in the end of the arms. One of the arms carries a funnel holder like that in an ordinary filter stand; for the other rods the usual lamp rings are provided. Of course both rods can be used at once for filtration or for ignition by providing more funnel holders or lamp rings. The third arm carries a burette holder for two burettes.

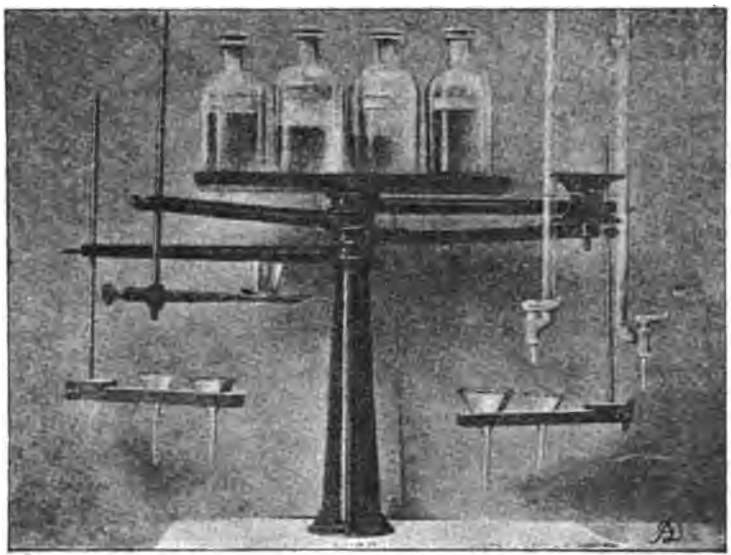
When the table is built against the wall we have a four-arm stand (see figure), all arms turning one way. I also use, in connection with this stand, Bunsen burners on ordinary two-arm gas brackets, which, like the arms of the stand, can be drawn out toward the operator and brought under the lamp rings, or pushed back when not in use, thus dispensing with rubber tubing and risk of fire. The cost of this stand is a little less than seven dollars.—Dr. G. C. Caldwell, in *Jour. of the Amer. Chem. Soc.*

Balata.

A very exhaustive report on *balata* (or chicle gum) has recently been drawn up by G. S. Jenman, Government Botanist and Superintendent of the Botanic Gardens in British Guiana.

The title of the report is "Balata and the Balata Industry, Forest Laws," etc., and it commences with a very interesting description of the bullet-tree region, including its inhabitants, character of the vegetation, etc. Coming to the immediate subject of the report, Mr. Jenman describes the bullet tree, from the bark of which balata is obtained, as a large forest tree ranging from Jamaica and Trinidad to Venezuela and Guiana. He refers it to *Mimusops balata*, and says: The vernacular name appears to be applied to two species or subspecies, which are united by Grisebach in his "Flora of the British West Indies." Young plants of *Mimusops globosa* of Jamaica and Trinidad, growing in the gardens, seem to be distinct from the Guiana type. The tree grows to a height of one hundred and twenty feet, and has a large, spreading head. The trunk is nearly cylindrical. The bark is about half an inch thick, with deep parallel fissures an inch or so apart. The hard, reddish-colored wood is one of the densest in the colony, and is used for all sorts of purposes where great strength and durability are required. The tree is more plentiful in both the eastern and western parts of this colony than in the intermediate region. From the east bank of the Berbice River to the Corentyn is the region of its greatest plentifulness in the colony, but its distribution extends still eastward beyond the Corentyn into Dutch Guiana, where a grant of several hundred thousand acres has recently been acquired by an American firm for collecting balata. The trees are more plentiful in this region in the depths of the forest than near the rivers, hence the creeks form arteries to the balata grounds. Several of the creeks on both sides of the Canjo are instances of this. The woodcutters of this district regard the tree as inexhaustible; in the interior of the forest it exists in profusion and abundance, and lies beyond the reach of the balata collectors as they at present conduct their operations. As the trees near at hand become exhausted, they will no doubt alter their habits, and make clearings as drying places in the heart of the forest; but now they are under the obligation of returning to the settlements on the creeks with the milk they have collected to dry. Under this necessity they can at most only penetrate about two days' journey, but, so far as they have explored, they report there is no diminution in the abundance of the trees. The forest at this depth, of course, has never been touched by woodcutters, as, for convenience in getting their timber out, they have to confine their operations to the banks of the rivers and creeks, rarely going in more than a mile or two. Regarding the character and value of balata, Mr. Jenman says its strength is very great; and as it does not stretch under tension for special appliances, such as bands for machinery, it is unequalled. It has recently been pronounced by an American firm of manufacturers as "the best gum in the world."

Dr. Hugo Müller, F.R.S., in a report on the substance says: "It seems that balata is by no means neglected, and, in fact, it would find ready purchasers if more of it came to the market; as it is, the supply is very limited, and generally it comes only once a year. It commands a higher price than gutta-percha, and this in itself is a proof of its usefulness. It is used in almost all cases in which gutta-percha is used, but, on account of its higher price, only for superior purposes. It seems that balata is treated by the manufacturers simply as a superior kind of gutta-percha, and, therefore, its name disappears when manufactured. Nevertheless, balata is distinctly different from gutta-percha, and this is especially manifested in some of its physical characters; for instance, it is somewhat softer at ordinary temperatures, and not so rigid in the cold.



Caldwell's Laboratory Stand.

In one respect balata shows a very marked and important difference from gutta-percha, and that is its behavior under the influence of the atmosphere; while gutta-percha, when exposed to light and air, soon becomes altered on the surface and changed into a brittle, resinous substance, into which the whole of the mass is gradually converted in the course of time, balata, on the other hand, is but slowly acted upon under these circumstances. The electrical insulating quality of balata is said to be quite equal to that of gutta-percha. Mr. Jenman says that the collecting of balata is an open and recognized business, is carried on only in Berbice, but he proceeds to show that the greater part of that so collected is not obtained from trees on government grants, but surreptitiously from crown lands; and Mr. Jenman further says that much damage is done to the crown lands by the depredations of collectors, and "that it is desirable, in the interest of the colony, till effective rules are devised for the protection of the forest and the preservation of this valuable wood, that the trade should be discontinued."

The life of the balata collectors is a very hard one.

The ground they have to traverse is generally very wet and swampy. In many cases the traveller at every step is up to his knees, and this continues for miles, and water often has to be waded through up to the armpits. When the collecting ground is not too far distant, women sometimes accompany the men, and cook or assist in laying out the calabashes and collecting the milk while the men fell and ring the trees. The collectors connected with a grant sell the milk they collect to the agent on the grant, and never dry it themselves. The price for pure milk is four shillings per gallon, or occasionally a dollar, and for clean, well-dried balata one shilling per pound. Considering the circumstances of the people who follow it, balata collecting, if pursued with industry, is a paying business. The calling pays better, while the season lasts, than the best mechanical trade; with fair weather a man can earn from one to five dollars a day at it, and an exceptionally expert collector has been known to make twenty dollars in three days.

The instruments used in collecting the milk are an axe for felling the trees, a cutlass for making the channels in the bark to cause the milk to flow, and two or three gourds in which to collect the milk. The collector commences operations by chipping a piece of the bark from the selected tree, and if the milk runs well he quickly shaves the moss and rough bark from the side he intends to tap; then, stooping down with his back to the front of the tree, but on one side of it, he cuts from the base of the tree obliquely upward toward himself, in the bark, a narrow channel, then, moving round the other side, a similar one. These grooves are generally about eighteen inches long; they form an acute angle at the base, just below which a nick is cut in the bark and it is slightly lifted with the end of the cutlass, and a calabash inserted by the rim under it. Occasionally a piece of palm or maranta leaf is inserted under the bark, and the calabash is placed on the ground, the leaf conducting the milk into it. The channels are then quickly cut upward parallel to each other on the opposite sides about ten inches apart, the operator continuing them as far as he can reach, which is about eight feet from the ground. The milk trickles from cut to cut down this zigzag line into the calabash beneath. The best collectors cut the bark with much neatness and precision, and do not injure the trees; but little care is usually taken, and the wood is injured with every stroke of the cutlass, the result being that numerous trees are killed and left standing. Large trees are always tapped on the opposite sides, careful collectors leaving the intervening spaces for subsequent years. It takes from five to ten minutes to cut the channels in each tree, and the milk runs from forty to sixty minutes; at first it forms a little rivulet, but after about twenty or thirty minutes it only drips. After a little use the gourds become so coated on the inside with dry balata that they have to be occasionally soaked in water, when it peels off freely, leaving them perfectly clean again. The yield of a tree varies according to circumstances. If favorable, a tree fifteen inches to twenty inches in diameter, bled eight feet high, will yield three pints of milk. Trees are often felled, and then tapped by ringing the bark in parallel transverse lines at intervals about a foot apart.

To dry the milk, it is poured into shallow wooden trays, the insides of which are previously rubbed over with oil, soap, or grease to prevent the balata sticking, and the substance is exposed to as much air as possible, and sometimes to the sun. In fine weather it takes two or three days to dry, and in wet weather a week or more; when it is sufficiently dry to be removed from the boxes, the sheet is thrown over a line or bar to drip and become hard.

A good deal of foreign matter is found in the milk, and Mr. Jenman says adulteration is systematically carried on, and the agents have at all times to be on their guard against it.

The report concludes with a consideration of the damage done to the forests, and some remarks on their better conservation.—After *Scient. Am.*

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CORRECTION.—On page 118, second column, third paragraph, fifth line, read *flesh* instead of *cuticle.*

A Great Magnesia Mine.

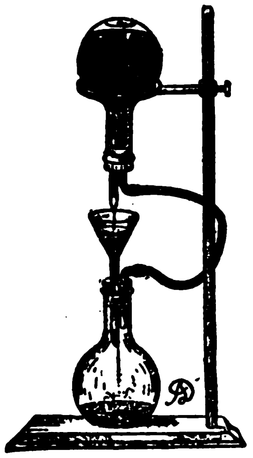
AIGUES-MORTES, on the Mediterranean, is known to all geologists as a remarkable instance of the slow upheaval which is constantly going on in many places. In former times it was a seaport of considerable importance, but it now stands at the head of mud flats stretching more than two miles inland. Partly in consequence of these geological changes, which have rendered the locality convenient for dealing with large quantities of sea water, Aigues-Mortes possesses at the present time features of interest to the engineer, particularly to the engineer occupied in the production of steel. Works of no great magnitude yet, but of certainly growing importance, have been constructed here for the production of magnesia. The mine from which this mineral is extracted is fairly rich and of no inconsiderable extent, being nothing less than the sea itself. With so large a property to draw upon, the company formed to operate it are free from the apprehension of exhausting their mine before a satisfactory return for the outlay has been obtained. They have, moreover, the great advantage of being able to work upon it in any part of the world where the produce may be required. These circumstances constitute features in the magnesia works of Aigues-Mortes not possessed by every mining undertaking.

The quantity of magnesia in sea water is sufficiently great to render its extraction profitable. In a cubic meter of water there are about 2 Kgm. of pure magnesia, existing as a chloride or a sulphate. To obtain this in the form of hydrate, the cost only slightly exceeds the value of an equivalent quantity of lime required to effect the transformation, the processes being exceptionally simple. The chemical reactions relied upon to give the magnesia in the uncombined state are these: When milk of lime is poured into sea water the molecule of chloride of magnesium is broken up, chloride of lime being formed, which remains in solution, and a milky precipitate of hydrate of magnesium is thrown down. Similarly from the sulphate of magnesium we obtain the same precipitate and sulphate of calcium. But the great bulk of magnesia exists in sea water as the chloride. The hydrate, when calcined, assumes two different states, according to the temperature at which the calcination has been effected. If the temperature has not exceeded 900° F., the resulting caustic magnesia is capable of resuming its water of hydration and setting hard like a cement. But if the substance has been raised to a white heat, it no longer retains that property and is indifferent to the action of water.

The magnesia extracted by these means at Aigues-Mortes is intended to be used as a substitute for dolomite, or magnesian limestone, in the Bessemer process of steel manufacture, and for this purpose it is moulded into the form of bricks.

It seems highly probable that these magnesia bricks will in a short time come into general use for this purpose, and such works as those at Aigues-Mortes will then be called into existence in many places. A new and important industry may in this way be established in this country. Equal to lime in infusibility, magnesia is a more perfect type of a refractory substance, and is applicable to every use in which it is not brought into contact with an acid substance in a state of fusion. The ease with which it may be moulded into bricks is also a practical advantage of no small value, and such bricks are greatly superior in many respects to those made of dolomite. A dolomite brick needs an anhydrous cement—usually coal-tar is employed for the purpose; it will keep unaltered only a few days, even when every precaution is taken to shield it from atmospheric influences, and it is of too frail a nature to permit of its being handled roughly. But a magnesia brick is similar to one of common clay in all these particulars. In the matter of cost, too, the advantage is on the side of the magnesia brick. Per ton, the latter costs almost exactly twice as much as the dolomite agglomerations; but as 130 pounds of the limestone are required per ton of steel produced, while 40 pounds of magnesia are sufficient for that quantity, the relative cost is as 2 to 3. This is an important merit, and the one that will commend itself most forcibly to the manufacturer of steel. It is, moreover, to be borne in mind that when magnesia is used in the converters the duration of the linings is increased threefold. Possessed of these numerous and great advantages, magnesia bricks can hardly fail to supplant the dolomite in the use to which the latter are put in the Bessemer processes of steel-making. It is hoped that a further use of magnesia may be made by employing it as a reagent, in many cases, in place of lime. In such a case the scoriæ—phosphate of magnesia instead of phosphate of lime—would be reduced to about one-third.

At Aigues-Mortes the sea water is pumped into a large tank of masonry, and an equivalent quantity of milk of lime is run into the tank along with it. The flow, both of water and milk of lime, is continuous during the time of working, the relative quantities of each being calculated to give the requisite proportions. The mixture flows from this tank into two similar tanks in succession, and is briskly stirred in each by agitators driven by steam, or often by horse power. The precipitate, now in suspension, is to be obtained by filtration, and for this purpose the water is run upon filtering beds. These filtering beds are formed of fine, clean sea sand spread over the bottom of shallow excavations about 1,000 feet long and 16 feet broad. The magnesia is deposited upon the sand as a heavy, tenacious mud, and the supernatant liquid flows off clear at the far end of the bed. When a sufficient quantity has collected, which is known by the sand ceasing to decant properly, the inflow is stopped, and the bed, with its charge of magnesia, is left to dry up in the sun. This takes from twenty to thirty days. Of course, this method of drying can be adopted only in the summer months, and not even then in every climate. But the drying could be done artificially without adding greatly to the expense. The managers of the works at Aigues-Mortes have now under consideration a plan of this character to enable them to work all through the year. With their present arrangements they are treating 1,000 Cm. of sea water a day, and they obtain from the filtering beds an average of 2 pounds of magnesia per square yard of surface per day. The extent of the beds is being increased to treat a larger quantity of water in the coming summer season. The present output is 6 tons a week. The dried magnesia slime is stowed away in sheds, to be calcined and moulded into bricks, the manufacture of which is carried on throughout the year.—*Scient. Am. Suppl.*


Wood's Filter Washer.

APPARATUS FOR WASHING FILTERS.

The arrangement shown in the cut is recommended by R. W. Wood (*J. Anal. Chem.*). It is intelligible without detailed description. The supply of fresh wash water is regulated by the rate of filtration. As filtrate flows into the lower flask, air is displaced from it into the upper one, and a corresponding volume of water is made to flow into the funnel.

A NEW PINCHCOCK FOR BURETTES.

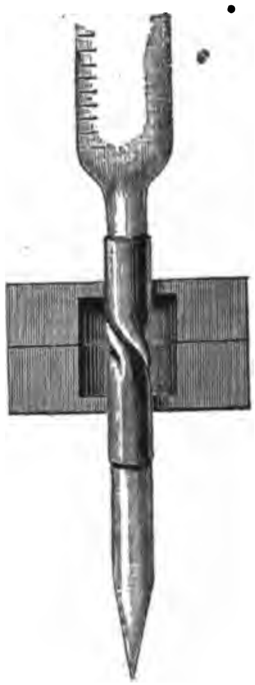
A. Dannbacher describes a new contrivance for regulating the flow of a liquid from a burette. It may be called a pinchcock for want of a better term. Two circular pieces of wood are centrally bored, the hole being just large enough to permit the pieces being slipped over the rubber tubing connecting the burette with the nozzle. A portion of the interior of each piece is also bored out, and the surfaces of the two pieces which are to be in contact are roughened so that they will not too readily slide upon each other. The upper piece is now slipped over the tube, next the lower piece, while some traction is made on the rubber. This causes the lower piece to become pressed against the upper one and to remain in contact with it, no matter whether it is twisted or not. By twisting the lower piece the flow of the liquid may be exactly regulated, stopped, or kept at any desired rate.—*Neueste Erfind. and Erf.*

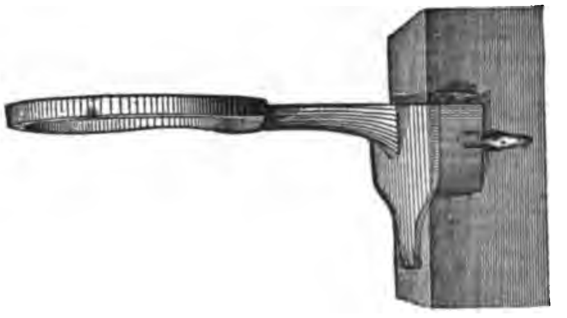
HART'S RETORT STAND.

Edward Hart, Professor of Analytical Chemistry, Lafayette College, describes a retort stand which he has for use where space is limited and the upright supports of some desk shelves are made to serve as the point of attachment. The illustration shows quite well the details of construction, and it will be noticed that a bent strip of strap iron is interposed between the point of the screw and the wooden upright to insure a firmer hold and avoid defacing the upright. When not required the support can be kept in a drawer. It can be had of Jacob Wilson, Easton, Pa., for 25 cents each, or $2.50 per dozen.—*Jour. of Analytical and Applied Chem.*

Reactions of Arsenic.

G. Loof recommends hypophosphorous acid as the best reagent for arsenic, as described by J. Thiele. Arsenic is only precipitated from the strongly hydrochloric solution by heating. Ten C.c. of hydrochloric acid, if heated for several hours with 0.1–0.2 Gm. of calcium hypophosphite, will show the presence of arsenious oxide if 0.01 Mgm. be present. Of glycerin, sulphuric acid, phosphoric acid, 5 C.c., with 10 C.c. of concentrated hydrochloric acid, is a suitable quantity; of calcium phosphate, sodium phosphate, or tartar emetic, 0.5 Gm. in 10 C.c. of hydrochloric acid is sufficient. In the case of bismuth subnitrate, it should be previously freed from nitric acid by gentle heating, or by dissolving an equal weight of the hypophosphite with it in hydrochloric acid. Of Liquor ferri chloridi, 5 C.c. in 10 C.c. of hydrochloric acid are decolorized with Bettendorf's reagent [a strongly acid (HCl) solution of stannous chloride, containing a little sulphuric acid], and then 0.2 Gm. of the hypophosphite added. Antimony oxysulphide is dissolved by hydrochloric acid and potassium chlorate, filtered through glass wool, and heated with hypophosphite for several hours on the water bath.—*J. Chem. Soc.* from *Chem. Centralbl.*


Dannbacher's Pinchcock.


Hart's Retort Stand.

Thymol a Remedy for Filaria.—Surgeon-Major E. Lawrie reports in the *Lancet* (February 16th, page 364) the cure of two cases of chyluria dependent on filaria (threadworms) in the blood by treatment with thymol. It was administered internally in doses of 1 grain every four hours, gradually increased to 5 grains. This discovery is the more important because there has been hitherto no known remedy for the disease.—*Pharm Journ.*

Notes on Essential Oils and Allied Substances.

(From the April Report of Schimmel & Co. [Fritzsche Bros.], Leipzig.)

Anethol.—Attention is drawn to the fact that there are various "anethols" offered in the market which do not deserve this name, being at best but oil of anise subjected to fractional distillation, that is, a certain fraction of the oil. Pure anethol, however, is characterized by the following properties:

1. Its exquisitely pure and fine odor of anise.
2. Its absolute freedom from color.
3. Boiling point at 234° C.
4. Melting point between 21° and 22° C.
5. Specific gravity, 0.985 at 25° C.

The most important of these criteria is the melting point. Schimmel & Co. strongly advise buyers of anethol to insist on the above-mentioned conditions.

Oil of Bay.—This oil, as now distilled by the New York house of Schimmel & Co., is reported to be more soluble than that formerly produced. This is said to render ageing or maceration, as well as filtration, unnecessary.

According to E. M. Holmes, the tree from the leaves of which the oil is derived is not a Myrcia, but a Pimenta, and should be named *Pimenta acris*.

Oil of Birch Tar.—A new kind of crude oil of birch tar is now obtained from the Russian province ("government") of Mink. It possesses the peculiar aroma of "Russia leather" in a much greater degree than that heretofore obtained from Poland. It is also put on the market in a rectified form, but does not then possess so strong and lasting an odor as the crude.

Oil of Cassia.—Schimmel & Co. urge all importers and dealers in this article to join them in their efforts to bring about an amelioration in the quality of the oil by refusing to purchase any which is deficient in aldehyde and contains an excess of resinified products. The firm offers to test, free of charge, any samples of the oil that may be sent to them.

Oil of Bergamot.—Pure oil of bergamot is stated to be a scarce article. At present the principal adulterant is said to be oil of lemon, of which a special kind is made for this purpose, being pressed by machine. Schimmel & Co. furnish valuable data for distinguishing the pure oil from mixtures of it with oil of sweet orange or oil of lemon.

The most reliable criteria are the specific gravity, the rotatory power, and the solubility in alcohol. It is even possible, by a careful determination of the two former, to ascertain, quite closely, in what proportion the several oils have been mixed.

Pure Oil of Bergamot:

Spec. grav.: 0.881 to 0.885 [once also 0.892, but this was obtained from over-ripe fruit, such as is never used for making the oil in Italy].

Rotation (100 Mm. tube): + 8° 30′ to + 19° 30′

Pure Oil of Sweet Orange:

Spec. grav.: 0.849 to 0.855.

Rotation (100 Mm.): + 97° 4′ to + 97° 32′

Pure Oil of Lemon:

Spec. grav.: 0.857 to 0.863.

Rotation (100 Mm.): + 40° 10′ to + 62°.

Addition of oil of orange, therefore, will depress the specific gravity of oil of bergamot, and at the same time increase its rotation. Moreover, it will lose its solubility in a small quantity of alcohol of 90 per cent.

Less notable are the physical changes of oil of bergamot when it is sophisticated with oil of lemon. Nevertheless, even in this case, the same alterations in specific gravity and rotation are noticeable, though in a minor degree The solubility in alcohol is likewise diminished.

Admixture of oil of turpentine is less common. It is usually recognized by the odor and by a lower specific gravity.

Addition of fatty oils is recognized by an increased specific gravity, and by the residue which is left behind on evaporating the oil at 100° C. Even pure oil, however, leaves a residue. On evaporating about 2 Gm. of the pure oil upon a watch glass at 100° C. until the odor has completely disappeared, there remains a green, homogeneous residue of the consistence of ointment, which amounts to about 6 per cent in a good oil. In *fresh* oil, which has not been completely clarified by standing, the percentage is sometimes a little higher. If any fatty oil is present, however, the amount of residue is larger and has a different consistence. At the bottom there will be a green, thick, greasy mass, and over it an oily, yellow liquid.

Upon the basis of what has been stated, the following conditions should be fulfilled by a good oil:

Specific gravity not below 0.880. Rotation, in a 100 Mm. tube, not over + 20°. The oil should be soluble to a clear liquid in ½ part of alcohol of 90 per cent, and this solution should not become cloudy upon addition of more of the same alcohol. On evaporation, the oil should not leave more than 6 per cent of residue, which should be a green, homogeneous mass. The oil should not contain any pinen [boils at 160° C.].

Schimmel & Co. regard these conditions as very mild, and believe that they can eventually be made much more rigorous.

Oil of Eucalyptus oleosa.—This oil, now obtainable in considerable quantities, is extraordinarily rich in eucalyptol, and, when exposed to cold, congeals to a pulpy mass. Moreover, this oil is free from the constituent which (in the common oil of eucalyptus) excites cough, and hence is more suitable for spraying in sick-rooms. It also contains much cumin aldehyde, which is already noticeable from the odor.

Oil of Fennel.—The greatly fluctuating value of this article is due to the varying amount of anethol present or left in it. It is customary to separate this constituent more or less, for the purpose of mixing it with oil of anise.

Oil of Geranium (so-called).—This oil, derived from *Andropogon Schoenanthus*, is now available from various countries besides India. The finest quality, according to Schimmel & Co., is now furnished by the island of Réunion. Oil of geranium is remarkable for its property of being completely soluble, even in dilute alcohol. The following test is, therefore, suggested by Schimmel & Co., which would show the presence of any fatty oil:

"Oil of geranium should be soluble in from 2 to 3 volumes of alcohol of 70 per cent, at a temperature of 20° C."

If much fatty oil is present, the mixture will have a milky appearance; if only a little is present, it will only be turbid and gradually deposit a smeary coat on the walls of the vessel.

Oil of Linaloe.—According to recent information, oil of linaloe is exclusively prepared by the Indians in the province of Guerrero, about one hundred leagues from the City of Mexico. It is brought to market only in small quantities, up to 1 arroba (or about 13 quarts). In recent times the Indians had given up the distillation of the oil on account of the unprofitable price. But owing to the increased demand, particularly from France, where this oil, in combination with oil of cananga, is used largely in a favorite toilet soap, the distillation has been undertaken again.

Oil of Bitter Almonds.—It has been generally held that the artificial oil of bitter almonds—that is, the synthetic benzaldehyde, such as it appeared in commerce—was always contaminated with chlorine, derived from the benzoyl chloride from which it is prepared. And upon the presence of chlorine was based the conclusion that any oil containing it was not pure natural oil of almonds.

Recently the firm of E. Merck, of Darmstadt, denies the correctness of this conclusion, and asserts that genuine oil may likewise contain, at least occasionally, some chlorinated compounds (see this journal, March 16th, page 85).

Schimmel & Co. take exception to this. They say that they have never met with any chlorine in the many tons of oil of bitter almonds which they have distilled during the last fifteen years. But, in order to investigate the subject more thoroughly, they procured from E. Merck a quantity of natural oil stated to contain chlorine. This oil was quoted on Merck's price list as Ol. Amygdalarum amar. *verum*, containing chlorine and free from hydrocyanic acid.

It will be interesting, in view of the scientific and practical importance of the subject, to give the results obtained by Schimmel & Co. more in detail. We translate from their report:

The chlorine compounds in oil of bitter almonds may be of different nature. They are either *organic* compounds, such as benzyl chloride, mono- and di-chloro-substitution products of benzaldehyde and benzylic alcohol, etc. Or there may be present faint traces of *inorganic* chlorides, such as chloride of sodium or chloride of calcium, which may have been introduced in dehydrating the oil. Naturally, the latter (which cannot be detected by Schimmel & Co.'s test) do not influence the quality of the oil, while, on the other hand, even very small quantities of the organic chlorine compounds—which possess a penetrating, repulsive odor and a most disagreeable taste—render the oil unsuitable for perfumery or for compounding cordials.

For this reason, the search after chlorine compounds may be restricted to those of an organic nature, and these can be easily detected by the "combustion method." If this is deemed insufficient, they may be detected in the following manner:

Oxidize a small quantity of the oil with a warm alkaline solution of potassium permanganate, destroy the excess of the latter by adding alcohol in drops, filter, and acidulate the filtrate with dilute sulphuric acid. When the mixture is completely cold, the separated benzoic acid (containing all the chlorine compounds, with the exception of any benzylchloride, in form of one of the chlorobenzoic acids) is caught on a filter and carefully washed. (If the filtrate contains rather notable amounts of chlorine, this points to the presence of organic chlorides in the original oil.) Dissolve the benzoic acid in pure caustic potassa, add a little potassium nitrate, evaporate to dryness, and ignite in a platinum capsule. Treat the residue with water, acidulate the solution with nitric acid, filter, and test the filtrate for chlorine by means of silver nitrate.

The presence of *organic* chlorides may be shown as follows:

Heat 5 to 10 Gm. of the oil to boiling in a small flask, and receive the first 10 or 12 drops of the distillate in a 5-per-cent alcoholic solution of potassa. Heat this for some time under an upright condenser, evaporate off the alcohol, mix the residue with water, and by shaking with ether remove the oily constituents (benzyl alcohol, etc.). Warm the aqueous liquid for a short time in a capsule, acidulate it strongly with nitric acid, allow to become cold, filter off the separated benzoic acid, and test the filtrate for chlorine.

These same methods may also be used, slightly modified, for the approximate, quantitative determination of these chlorine compounds.

Schimmel & Co. subjected the oil obtained from Merck to these tests, and found it to respond to them, whence they conclude that it contained not only organic chlorides, but also the above-mentioned chlorinated substitution products. This is taken as a proof that the oil contained artificial benzaldehyde (from toluol), since no one would dare to assert that such chlorine compounds are generated during the distillation of almonds.

A quantitative determination of the chlorine in Merck's oil gave results which led Schimmel & Co. to conclude that this particular oil consisted entirely, or almost entirely, of ordinary benzaldehyde.

Eugenol.—A crude eugenol containing about 95 per cent of the pure substance (which is the solid constituent of oil of cloves) is being obtained as a by-product in the manufacture of safrol (from crude Japanese oil of camphor). Several thousand kilos of this are at present available, and are sold at only 4 marks per kilo.

Oil of Rose.—Schimmel & Co. state that they will hereafter put on the market oil of rose deprived of its inodorous stearopten. It will, therefore, remain liquid, even when exposed to cold, and will be more readily soluble in alcohol. It would be well if other dealers in essential oils were to follow this example.

Oil of Sandalwood.—There are now four "oils of sandalwood" in the market, though this is not in every case derived from true sandalwood. The commercial names and some of the distinguishing characteristics are as follows:

	Specific Grav.	Rotation.
East Indian	0.978	−17° 20′
Macassar	0.976	−18° 40′
West Australian	0.953	+ 5° 20′
West Indian	0.956	+26° 10′

Oil of Star Anise.—This oil is usually received free from adulteration. An important criterion is its congealing point, which is at about 13° C.

In determining the freezing point it must be remembered that this oil, like the oils of anise or fennel, is very prone to remain liquid for some distance below the true freezing point. This may be avoided by adding a few ready-formed crystals to the oil near the point at which it ought to congeal. Proceed as follows:

Cool the oil by immersion of the containing vessel into water at a temperature of 12° to 14° C.; add to it, by means of a glass rod, a minute piece of a sample of the oil previously crystallized. The whole mass must now become a crystalline magma, which should not become liquid under 15° C.

In using this test upon an original can of the oil, it is necessary to make sure that the whole contents of the can are liquid before a sample is removed.

Oil of Wintergreen.—A new method of treating rheumatism by this agent has recently been introduced. A mixture of oil of wintergreen and olive oil is made, the affected joints rubbed with it and then wrapped with cotton. The pains are said to disappear in four to six hours. This method has been reported to be especially efficacious in chronic rheumatism.

Citral.—This constituent of oil of lemon, which has been found by Schimmel & Co. also in seven other oils (among them the oil of a species of eucalyptus), is now a regular article of manufacture. Oil of lemon contains only 7.5 per cent of it. Hence 75 Gm. of citral are sufficient to take the place of 1 kilo of oil of lemon.

It has been found that the most rational way of using citral is to combine it with oil of lemon. The following is suggested: Dissolve 1 part of citral in 14 parts of oil of lemon. To make lemon syrup, take 10 to 15 Gm. of this mixture, previously dissolved in a little alcohol, for every 100 kilos of syrup. The resulting syrup will be entirely clear and have a fine aroma.

Heliotropin.—The odor of this very useful perfume is stated to be brought out to perfection by the judicious admixture of cumarin.

Iron Quinine Chloride.

ATTENTION is called by Dr. J. Kersch to "iron quinine chloride" as a preparation deserving of more attention than it has hitherto received (*Pharm. Post*, March 1st, p. 172).

The preparation is described as being made by adding an equivalent weight of pure quinine to a solution containing an equivalent weight of ferric chloride, in which it should dissolve perfectly without any reduction taking place, forming a dark red solution.

This thickens, upon standing for a time in a warm place, to a paste, which, when dried at a moderate temperature, sheltered from light, forms a hard, dark brown mass presenting a resinous fracture.

This iron quinine chloride is amorphous, and can be easily powdered, but, as it readily absorbs moisture, it should be kept in well-closed vessels.

It dissolves freely in water and alcohol, somewhat less freely in ether, and has a bitter, astringent taste. Dr. Kersch states that, applied externally, the compound has hæmostatic properties similar to ferric chloride, but that even in concentrated solution and applied to fresh wounds it is without causticity and perfectly painless in its action.

Administered internally, Dr. Kersch says he has found a 10-per-cent solution very useful in cases of profuse hæmorrhage post abortum, in doses of 10 drops every one or two hours, given in water or on sugar enclosed in a wafer; also in profuse menstruation, in 10-drop doses five or six times a day, and in pulmonary hæmorrhage.—*Pharm. Journ.*

Method of Estimating Nitric Acid by its Conversion into Ammonia.

THERE are various methods known by which nitric acid may be reduced to ammonia, and some of them have been at different times proposed and used for analytical purposes. Recently, however, a new one was proposed by Karl Ulsch which is so simple and easily executed that it will probably supersede any other. In fact, it is easily executed even by those who are not very expert with analytical methods involving considerable skill and experience.

The author found that by heating the solution of a nitrate with dilute sulphuric acid and very finely divided iron (reduced by hydrogen), the nitric acid is very rapidly and completely reduced to ammonia.

In executing this reaction the amount of nitric acid to be converted in one operation should not exceed that which is equivalent to 0.5 Gm. of potassium nitrate.

[If nitric acid is present in the free state, it is neutralized with potassa. Every reagent and solvent entering into the reaction must be free from ammonia. It is best to make a blank experiment, leaving out the iron, to ascertain the amount of ammonia contaminating the ingredients, if any has been found present.—ED. AM. DRUGG.]

Into a half-liter flask are put 25 C.c. of the nitrate solution (containing not over 0.5 Gm. of potassium nitrate or its equivalent in nitric acid), next 10 C.c. of dilute sulphuric acid (spec. grav. 1.350), and lastly 5 Gm. of commercial "reduced iron." In order to avoid loss it is advisable to insert into the mouth of the flask a pear-shaped glass vessel. [We suggest a test tube large enough *nearly* to fill the neck. If desired, this may be closed with a rubber stopper carrying a long and a short glass tube, the former of which is connected with the water supply. A current of cold water may thus be made to pass through the tube, which will effectually prevent loss of volatilized products.—ED. AMER. DRUGG.] By cautiously warming the flask with a very small flame, a brisk but not violent evolution of gas is maintained. In proportion as the reaction diminishes the heat is increased, so that the liquid will begin to boil in about four minutes after the beginning of the reaction, the amount of gas given out being kept as near uniform as possible. When no more gas is given off and the liquid has been kept boiling for half a minute or so longer, the reduction is completed. It thus requires only about five minutes' time.

The contents of the flask are now diluted with 50 C.c. of water, then supersaturated with 25 C.c. of ammonia-free soda solution (spec. grav. 1.250), and the ammonia then distilled over [into volumetric acid]. As the liquid is small in quantity, only about six or seven minutes are required to distil it over under brisk boiling.

This method permits the estimation of nitric acid from the first to the last step in fifteen to twenty minutes, if all the apparatus and materials are ready.

The author points out that the quantities and proportions of materials to be used in each determination should be those directed above, as the given proportions have been found to yield the best results.

Analytical data added by the author show that the obtained results are exceedingly accurate.—*Chem. Centralbl.*, 1890, 926.

Hypnal.

ATTENTION is called by M. Demonde to the ease with which pharmacists can prepare their own supplies of monochloralantipyrin, or "hypnal" (*Répertoire*, March 10th, p. 107).

If a solution of 47 Gm. of chloral hydrate in 50 C.c. of distilled water be mixed with a solution of 53 Gm. of antipyrin in 50 C.c. of water, and poured into a separating funnel, an oily-looking liquid is formed in the lower part, which, after standing an hour, is drawn off from the aqueous supernatant liquid. At the end of twenty-four hours the oily liquid will be converted almost entirely into a mass of transparent rhombic crystals, and some small crystals will have formed in the aqueous liquid.

These should be drained and dried between folds of filter paper or under a glass with sulphuric acid.—*Pharm. Jour.*

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EDITORIAL.

WE have the pleasure of presenting in extra pages of this issue a telegraphic report of the meeting of the American Pharmaceutical Association in New Orleans. The prediction, in our issue of April 15th, of an unusually interesting meeting seems to have been fully justified in every particular, and the only ones who have any fault to find are the ones who did not *get there*.

IT is to be regretted that the cool way with which some of our pharmaceutical exchanges lecture the retail drug trade on their error of judgment in making so much disturbance about the cut-rate troubles, cannot be put to some available use in cooling soda fountains or tempering the heat of summer when ice is scarce. At the outset of the trouble it was the advice, encouragement, and assistance of these very journals which induced retail druggists to assemble, declaim, and resolve, and it is not creditable to their wisdom—now that the bottom has dropped out of the movement, when it is discovered that the plans which they advocated are declared to be illegal, and when the result of the agitation has been only to the advantage of the cutter—that they should calmly say to their readers: "You ought to have known better!" After two disastrous attempts at imitating Mrs. Partington's experience in checking the rise of the ocean tide with a broom, it is to be hoped that our friends will read their own back numbers with some care before they offer counsel in another rate-cutting warfare.

Meanwhile our advice is to strive for organization of the trade, since without it nothing which involves co-operation is practicable, and it is only by organization that any approach to unanimity of action can be secured upon this or any other matter. Organization must precede action just as certainly in matters pharmaceutical as in such as are political or military. No army raised and drilled in the face of an approaching enemy can expect to achieve victory, nor can pharmacists hope, by sporadic and unorganized efforts in the event of some special occasion for action, to act with unanimity and power. Use any means for securing organization and for educating men to act in harmony, for developing leaders and accumulating resources. Read and discuss papers or local affairs, play baseball, or dine and dance. Whatever brings men together, and teaches them to act in unison and under proper guidance, will help them to act promptly and effectively when matters of greater importance demand.

One of our readers wishes to know the origin of the use of colored fluids in glass bottles as indicative of a pharmacy. We cannot tell him, without more research than the subject is worth, just exactly how long ago this custom originated, but it was at a time when the great mass of people could not read, and when *signs*, as they are still called, were employed, symbolic of the nature of the business carried on in the shop which displayed them. This was the origin of the boot of the cobbler, the horseshoe of the farrier, the bandaged arm and the spouting blood from its vein of the barber-surgeon, and the barber's pole, with spiral red and white stripes, which has succeeded it. In similar fashion the apothecary exhibited bottles filled with colored fluids representing the nature of his wares, the wine merchant fastened a grapevine over his door, which often was replaced by a branch of a tree when the vine was not available, and gave origin to the saying that "good wine needs no bush," *i.e.*, the man who sells good wine has no need of a sign for the guidance of his customers.

Since the people of this country have always been so far educated as to be able to read, these traditional customs relating to signs are not so much observed as in Europe, where some sort of trade mark was once the common property of nearly every business. Inns and ale-houses were usually known by the name of the sign which they displayed, and the most illiterate could recognize a picture of a "pig and whistle," a "golden eagle," or a "boar's head," when the words could not be read.

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College of Pharmacy of the City of New York.—At the time of our going to press the roll of graduates is completed, and the names of the 13 honor men of the graduating class have been published. The competition among the latter for the College prizes has, however, not been completed, hence the result cannot be announced by us in the present issue. The list of graduates is as follows, those on the roll of honor being printed in italics:

G. W. Abrams, H. F. Albert, B. Altheimer, O. F. Bancroft, O. Becker, A. H. Bischof, Ph. Blasser, J. J. Boylan, E. W. Braecklein, T. B. Breen, C. Britten, M. Brody, G. A. Browne, I. G. Bryant, Jr., *L. I. Buck*, W. R. Burkhart, J. E. Butler, D. Cafferata, F. I. Congleton, Jas. J. Cook, J. L. Copelin, E. C. Dennin, A. C. Dohrman, H. R. Du Bois, W. Eichler, *W. E. Fanning*, F. Farrington, R. C. Faulkner, E. F. Fielding, T. G. Fitzpatrick, S. W. Fowler, W. J. Fraser, A. Friedländer, L. Fritsch, G. D. Frueh, H. T. Galpin, A. C. Geist, C. R. George, J. J. Gieser, A. L. Goodman, *H. Groehl*, G. B. Hart, W. A. Hertwig, Th. G. Higgins, E. T. Hitchcock, G. P. Hoffmann, Th. H. Bollinger, O. P. Holm, L. P. Horning, J. L. House, *Ch. Huber*, H. Johannes, W. Johnson, G. B. Jones, E. B. Jorgensen, G. E. Judson, W. H. Kahrs, A. A. Kesseler, C. W. Knape, G. H. Koch, M. Krueger, W. B. Landon, O. P. M. Lieberenz, J. Link, J. H. Luff, E. J. Maring, F. W. Marx, E. W. McKeown, *H. L. McNulty*, J. J. Meytrott, E. J. Milhau, Alf. Miller, J. F. Miller, Jas. H. Monroe, Max Monteser, F. D. Moore, F. E. Nabers, S. W. Nelson, J. C. E. Nielsen, C. P. Oatis, D. R. Oduber, G. H. Paddock, N. D. Phillips, F. H. Plate, J. B. Pyne, Ch. H. Ravich, *G. W. Reed, Jr.*, H. Reiske, A. J. Rice, Jas. C. Ridley, *Ch. B. Riley*, W. Ripton, Orl. B. Salisbury, Jas. L. H. Sayre, W. L. Schaaf, *G. Schaumann*, W. F. Scherer, A. Schleimer, M. J. Schmitt, Ch. H. Sessions, *H. D. Shipman*, Alf. K. Smith, L. A. Spaeth, *E. F. Stone*, H. A. Tice, C. J. F. Timmermann, *F. W. Tobey*, S. B. Townley, *L. C. Trites*, Ch. W. Tuerke, A. M. Van Sickle, A. Ch. Vogt, J. C. Wagner, Helen Marguerite Warner, E. L. Waterman, Ch. Wells, Jas. F. White, S. E. Williams, S. Wygant—total, 119.

INFORMATION WANTED.

Our readers will confer a favor by answering any of the following questions and referring to them by number. We will undertake to forward the answers to inquiries when the request for information is accompanied with a directed envelope and postage. The names of the respondents (unless otherwise indicated) will be published in the next issue of the journal.

QUERIES.

2,525.—**How can Coal Oil be colored Red?**

2,526.—**Paste Poison for Rats and Roaches.** A paste compound of phosphorus, lard, and flour is liable to become dry and to ferment. What can be added to keep it moist and prevent the fermentation?

2,527.—**Ozone.** I would like to know a cheap source of ozone as a bleaching agent for organic material—chiefly cellulose. Cl or SO_2 will not succeed. The *Scientific American* (vol. xxx., No. 26, p. 403) gives three processes for ozonized oxygen, one of which I have tried. A saturated solution of alum at 160° F., and powdered chalk, equal in weight to the alum, added, then H_2SO_4. The gas conducted to bleaching chamber. No ozone could be detected by smell or by KI on filter paper. What literature can I consult? Is there any agent that will accomplish the result?

ANSWERS.

2,516.—**Comp. Fl. Ext. White Pine.** White pine bark, 30 gr.; balm of gilead buds, 4 gr.; sassafras bark, 2 gr.; wild-cherry bark, 30 gr.; spikenard, 4 gr.; bloodroot, 3½ gr.; chloroform, 4 ♏; acetate of morphine, $\frac{1}{16}$ gr. in each fluidounce.

Dr. G. B. Nichols,
Martin, Mich.

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CORRESPONDENCE.

Manufacture of Bromine at Canal Dover, Ohio.

Editor of American Druggist.

Dear Sir:—I notice in your issue of April 1st, page 105, an article on bromine in the United States. The statistics you have are evidently not correct, as Canal Dover has not manufactured a pound of bromine in the past year and very little in the past three or four years. Your report may be correct as to the ten years from 1877 to 1887 (222,669 pounds), but it is a non-producing territory at present. Michigan produced last year about 60,000 pounds, Pittsburg 110,153 pounds, Kanawha County, this State, 26,032¼ pounds, and the Ohio River (or Pomeroy Bend) 125,963 pounds in the pool, of which the Kautz Chemical Co. produced 72,319 pounds (they being the largest producers in the United States), and about 85,000 pounds were produced in this Bend outside the pool. This statement is exact, excepting as to Michigan and anti-pool product here. There is no pool organization now—every tub stands on its own bottom.

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Cocaine Reactions.

Professor Flückiger, writing to the *Pharm. Zeitung* regarding recent suggestions for the detection of cocaine, states, regarding the calomel test described by our Paris correspondent, that the reduction of the calomel only takes place when that substance is boiled with free cocaine in the presence of water, and not at all when spirit is used.

The reaction does not take place with cocaine hydrochloride.

Vitali's test is performed by dissolving a little cocaine, or any of its salts, in sulphuric acid (sp gr. 1.843). and adding a piece of potassium iodate the size of a barleycorn, when a green color is produced.

Professor Flückiger has also failed to get this reaction. At the best he has only been able to observe a red color.—*Chem. and Drugg.*

NEWS AND NOTES.

JAPAN.

(From our Native Correspondent.)

DRUG AND CHEMICAL TRADE IN JAPAN.

In the former 1860–1870, the drug and chemical trade in Japan were very small as the most of the people used the drugs; but the said trade are inclined to grow larger than before, as in this period the people of Japan were introduced to the civilization and begin to use the chemicals with the drugs; and I can say this is the first step to use chemicals in the large scales both in medical and industrial purposes; of course, before this time some of the chemicals, such as quinine, santonine, etc., has been introduced by the Hollanders already, but were not so much to mention at here. In the past thirty years, Japan has made a wonderful progress of civilization in any of things, and the drugs and chemicals trade made the same progression in these period, but the extraordinary period was 1880–1890. In the period 1870–1883, there in the drug and chemical market of Japan, the English products occupied the main part of the import, and we could scarcely met with the German products, and it may be in the proportion of 3 of an English and 1 of German products; but from 1883–1890, it becomes in a contrary condition, and still the main parts of the imported goods are chiefly German goods; if we classify the goods according to the countries, 4 parts from German, 2 parts from England, 1 part from France, 1 part from the United States, and other remaining 2 parts from the various countries.

Before 1883, the amounts of the imported drugs and chemicals to Japan are not so much, though it may be $300,000 to $500,000 a year. After 1883 it has been increased remarkably, and in the past four years it may be $1,500,000 to $2,000,000 of an average in a year; and this trades are growing year by year though natives are going to make chemicals and medicinal preparations.

In our drug and chemical market, we usually see the following manufacturer's products: Of German—Scherling's, E. Merck's, Gehe's, Reihidel's, Boehringer & Soehne's, Zimmer's, etc.; of an English—Hopkin William's, Baiss Brother's, Smith's & Co.'s, James Muspratt's, North British Chemical Works, etc.; of an American—Power & Weightman's, Rosengarten's. In the general average the medical chemicals chiefly comes from Germany and an industrial chemicals from the England; some of aforementioned German manufacturers are exporting directly to Japan. Among the natives, some are doing direct import from those factories, but it is a very few to number, and the majority are the buying or importing through the hands of foreigners who engaged upon the trade of the same in Yokohama or Kobe. The foreign firms who treats the drugs and chemicals in Yokohama are: Ahrens & Co., H. C. Marf & Co., Brown & Co., Cocking & Co., China and Japan Trading Co., Rhetz & Co., etc., and any of the foreign firms in Yokohama are willing to take troubles of export or import of the drugs or chemicals, charging 5 per cent commission for the native's request; but the aforementioned houses are well known by the native as a firm to treat drugs and chemicals; and this acquaintance may caused by the past results as in the previous times, most of the imported goods are always bear the trade mark or labels of the abovementioned firms. We often notice that the native products of an America are brought to our market by Germans or English, and never heard of an Americans are engaged in the business of these line in Yokohama except China and Japan Trading Co. and some pharmacist only; while several of an Americans are engaged in the trade of silks and tea in the Oriental market.

Among the American native products or bi-products which may suit for the market of Japan are: Balsams, barks, leaves, oils, tartaric acid, cream of tartar, chloroform, alcohol, glycerine, quinine salts, potassium bromide and iodide (if the price lower than European products and superior quality) and some of pharmaceutical preparations; of the further particulars I shall mention in the other day. Not only those, any kinds of chemicals or drugs will suit, if the Americans can supply the best quality with the lower price than Europeans; but referring the aforementioned goods I have no doubt to receive the entire satisfaction from the Japanese both in price and quality. With regards to the pharmaceutical preparations of the American products; Scott's Emulsion of Cod Liver Oil and Fellow's Phosphate had greatly succeed in Japan, and they have considerable demands in a year. Some of American firms in Yokohama were trying on the Horsford's Acid Phosphate from a few years ago, but they did not succeed as the above two.

To the exporting goods from Japan to American market are camphor, isinglass, menthol crystals, peppermint oil, galls, black oxide of manganese, sulphur, crude antimony, etc., and they are the principal exporting goods of Japan native products, and they can stand in the competition with the products of the other countries.

Tokio, March 31st, 1891.

ENGLAND.

On Friday, March 20th, the proposed "Bill to Amend the Pharmacy Acts" was read for the first time in the House of Commons. It is not too much to say that the trade is just apathetic about it, neither stirring in its favor nor raising much protest against it. And this in spite of a vigorous crusade carried on throughout the country by the President of the Pharmaceutical Society to attempt to stir up enthusiasm in its favor and disarm open opposition. There is some excuse for this state of apathy when the history of attempted legislation during the last twenty years is reviewed. Since 1868 no definite legislation in connection with pharmacy had taken place until last year, when Ireland obtained an amendment act. But on several occasions the council of the Society have attempted a move in this direction and signally failed. In February, 1883, the council introduced a bill, after some five or six years' discussion in committees, which had two principal features: 1st. Making it prohibitory to practise pharmacy unless duly examined and qualified. 2d. Giving the Society power to divide the qualifying examinations and enforce a curriculum. The real author of the new curriculum scheme was none other than Prof. John Attfield, F.R.S., Hon. Mem. A. P. A. and of a dozen American colleges and pharmaceutical associations. Unfortunately such an amount of opposition was raised against the prohibition clauses that the council had to withdraw the bill. In 1884 the Government attempted to produce a Poisons Bill, which was unanimously condemned by the trade, and, after being referred to a select committee, was forgotten in the struggle of a general election. The following year the council tried to obtain the consent of the Privy Council, who possess the veto, to divide the examinations and enforce a curriculum. The prohibition clauses were entirely dropped, but still the Privy Council declined to sanction them and recommended an appeal to Parliament. In 1887 this purely educational measure was introduced and oscillated for several years between the two Houses, making no progress whatever. Whatever feeling was displayed was against it. The present bill returns in a mild way to the original 1883 type—that is to say, it offers to chemists the sole privilege (with doctors and veterinary surgeons) of dispensing medical prescriptions and exemption from jury service in return for the establishment of a curriculum, a divided final examination, and compulsory three years' apprenticeship.

Dr. E. Klein, F.R.S., the distinguished author of "Micro-Organisms and Disease," has just reported to the Government his researches on diphtheria. Two species of bacillus were obtained from infected membranes, which were closely alike when cultivated in the nutrient agar-agar mixture. This agar-agar broth employed by him is made from the so-called Japan isinglass, and is obtained in large quantities from Paris by Messrs. Thos. Christy & Co., of Lime street, London, E. C. To this is added either peptone or extract of beef. He agrees with Löffler that one of these species of bacillus is a pseudo-diphtheria bacillus. Perhaps the most important part is the discovery by Dr. Klein that cats easily contract and transmit diphtheria. Food of diphtheritic patients given to such animals will communicate the disease to them, and they, in turn, may spread it to other cats and also to mankind. Dr. Klein cites several instances in which animals have conveyed this dreaded affection to children. A cat infected by another known to have suffered from the disease was carefully nursed by four little girls during its illness, and each child caught the infection. These facts explain, to some extent, the transmission of the disease, which is stated to kill annually from 1,000 to 2,000 persons in London alone.

Last Wednesday Surgeon Parke, whose name is inseparably connected with the Stanley expedition, was to have read a paper before the Pharmaceutical Society on the "Arrow Poison of the Pigmies." The distinguished surgeon, however, was not present, and the paper was read by Mr. E. M. Holmes, curator of the Society's museum, who has partially identified the botanical origin of the ingredients. Surgeon Parke is deeply impressed with the virulence of this poisonous compound, for such it appears to be. After considerable difficulty he persuaded a Pigmy woman, following the caravan, to show him the plants used and the method of preparing the poison. Two square inches of a bark were pounded together with two dozen long, green leaves, several feet of the pinkish shoots of a thorny creeper, about a dessert-spoonful of the scrapings from a green stem of a shrub, and eight small seeds. These quantities yield about a teacupful of a greenish-colored paste, into which the arrows are thrust. The bark was identified by Mr. Holmes as sassy bark, *Erythrophlœum Guineense* (Don.), which is known to possess a poisonous principle; the green leaves were of *Palisota Barteri* (Benth.), of which little is known; the creeper was probably a species of *Combretum*; the green stem was a species of *Strychnos*, known to be used as an arrow poison, and containing strychnine and brucine; the seeds were similar to those of *Tephrosia Vogelii*, used in Africa as a fish poison, and said to possess narcotic properties.

Saccharin does not appear to have obtained such a prominent position as was anticipated when first discovered. It was amazing to notice what a rush took place to welcome the novelty, and how ingenious were the devices of employing it. Messrs. Allen & Hanbury bought it largely—rumor says by the hundredweight—and announced that all their compressed tablets—tabellæ they call them—would be flavored with it. Another drug firm patented the idea of using a small quantity with the French chalk in pill coating, and so produce a sweet, "pearl" coated pill. These are nearly, if not quite, things of the past. An elixir, adopted by the B. P. C. formulary committee, is occasionally used by medical men to disguise a nauseous drug. It contains 5 per cent of saccharin, with spirit and water. They have also prescribed it in compressed form for sweetening the cup of the diabetic patient. But it remains for a company to advertise it to the public as "a boon to persons of rheumatic and gouty tendencies, and should be adopted by all persons suffering from dyspepsia, indigestion, or diabetes." Their advertisement is also ingenious. It is headed "What is Gout?" "I will tell you," said a Frenchman. "You put your toe in a vise, and then turn the handle until you can bear it no longer—that is rheumatism. Then you give one gr-r-r-eat turn more—that is the gout!" The saccharin is put up in "tabloid" or soluble granulated form and obtainable at grocers' and chemists'. As the name "tabloid" is the registered property of Messrs. Burroughs, Wellcome & Co., it is not too much to assume that they manufacture for this enterprising company.

London Market Report.

MINCING LANE, April 9th, 1891.

Reliable information from Smyrna indicates that the prices in the opium market have hardened, owing to the continuance of dry weather. It is too early yet to estimate the year's crop, but the arrivals to date were 400 baskets short of the number at the same time last year. It is undoubtedly a favorable time for buyers. The sales of bark on Tuesday consisted almost entirely of Indian and Ceylon cinchona, of which more than three-fourths changed hands at a reduction of 10 per cent on former prices, the unit being, as at Amsterdam, ⅞ to 1d.

The drug and chemical markets show little life. Aloes are in fair demand, ipecacuanha is steadily rising, and jalap steady at former rates. Heavy chemicals are steady at same prices, but slightly higher for forward delivery. Mercurials are unaltered, and iodine is fixed at 18c.

The following are current prices:

Acid, carbolic...	per lb.,	$0.12	Ipecacuanha....	per lb.,	$2.00
citric..........	"	.39	Jalap...........	"	0.34
oxalic..........	"	.07	Oils, castor	"	.08-.11
tartaric	"	.30	cottonseed....	per cwt.,	5.2
Bleaching powd.,	per cwt.,	1.7	olive..........	"	10.1
Camphor, crude.	per lb.,	.36	linseed...	"	5.2
refined.......	"	.42-.48	turpentine....	"	7.01
Cream of tartar..	"	.20	peppermint, H.G.H.,	p'r lb.	3.36
Cascara	"	.08	aniseed, Star..	"	1.56
Copper sulphate,	per cwt.,	4.0	Opium, Smyrna	per lb.,	1.85-2.16
Cinchona........	per lb.,	.04-.11	Potash, chlorate	"	.11
Cocoa Butter....	"	.24	Quinine, Germ.,	per oz.,	.20-.21
Ergot, Spanish..	"	.27	Rhubarb...... ...	per lb.,	.34-.48
			Shellac, TN.,	"	.18

HAMILTON, CANADA.

ONE of the greatest pieces of monumental nerve and double-rivetted copper-dome cheek was introduced to the astonished gaze of the brethren in the craft in the action of a resident of an Ontario town in applying to the Legislature for a special act allowing him the privileges of a pharmaceutical chemist in Ontario. The gentleman is a member of a firm of general merchants. A short time since, a chemist and druggist of that place, having removed to Toronto, and wishing to keep the former business in the family, sold the concern to the party first referred to (whom we may call Mr. A., and who is a relative), providing he could register. Now, Mr. A. has for the past decade or more been content to administer codfish, coffee, hats and caps, boots and shoes, wood, coal, and plasterers' materials to the farmers of the surrounding district. Before the Act of '71, Mr. A. (who was about 12 years old then) claimed he was in business entitling him to be registered in accordance with the Act. His idea of a pharmacist is very broad. Paregoric, Paris green, laudanum, castor oil, Pain Killer, and Bristol's Sarsaparilla appear to have been the stock in trade of pharmacists prior to the passing of the Act. Now Mr. A., on the head of this, wishes to affiliate with our august body. But it has been proved conclusively that Mr. A. was not in business at the time he claims to have been; that, even if he were, he has not complied with the provisions of the later Act; and, furthermore, that he is not competent to dispense even the few drugs kept in his establishment, as evidenced by his examination before the Private Bills Committee. He was handed an old examination paper whereon the formula for Emuls Ol. Ricini was written. He made out the oil, gum, and water, but stuck at the M. ft. This was overlooked, however, and he was asked to proceed with the directions. "But they are in Latin," said he, "and doctors nowadays always write them in English." "But supposing you were given directions in Latin?" he was asked. "Oh! we have a book that tells all about that," he replied.

This would all prove amusing, were it not an infringement on one's rights. Mr. B. has obtained the support of a great many of his co-laborers, and by drawing in a few of the rural members (who are willing to support anything, providing their bills relating to village incorporation or building a town hog-pound are supported in return) the amendment may go through. But a circular from the president of the college has drawn the attention of the druggists to the affair, and the door whereby Mr. A. and some twenty or thirty others might slip through will in all probability remain closed, and their ambition to toy with the wily globule and seductive mistura will remain ungratified.

Orders are out for the nomination of candidates for the coming elections in the Ontario College of Pharmacy. Nominations must be made by June 1st. Elections take place on July 1st.

MR. N. A. BOSWORTH, of Stratford, now boasts of one of the handsomest drug stores in Canada. The fittings are of massive oak, handsomely carved. The counter fronts have glass fitted into them, with movable shelving, surmounted by beautiful oak and plate-glass show cases. The walls are very tastily papered, and, while giving the idea of richness, do not admit a trace of being overdone. The large plate-glass windows in front give excellent light in the daytime, while the arc and incandescent electric and gas lights make the place one blaze of glory when the light of day fails. The fittings are in sections, and so arranged that in case of fire they may all be moved in short notice. In fact, it is one of the most modern of modern drug stores.

Mr. Fred. H. Yapp, of Hamilton, has purchased the Coulson stock and moved it to the corner of Cannon and James streets, to a store handsomely fitted with mahogany furniture. He will continue to run the York street business as well.

It is understood that **Mr. A. Rutherford**, of Hamilton, intends opening a branch on James street, North, where he is having a store furnished with all the latest conveniences.

Mr. J. A. Clark, of Hamilton, has given up the premises so long occupied by him on King street, E., and moved still further east. The stand is not so good a one, but it appears that his late landlord intends tearing down the old building and erecting a large warehouse for his own use. So Mr. Clark got out and took the best available stand before some one else got hold of it and left him in the cold.

The large new warehouse on McNabb street, S. Hamilton, being built for Messrs. Archdale, Wilson & Co., is nearly completed, and will be out of the hands of the contractors about the end of the month. When finished it will be the most complete wholesale drug house in Canada. Everything has been arranged with a view to economy in space and time. The offices on the ground floor are fitted up in light varnished wood and white oak. Mahogany overmantels with tiled fireplaces give the rooms a look of luxury unassociated with the older drug houses. The shipping and packing departments are large and well ventilated. The laboratory is to be fitted up with all the latest appliances, and is so arranged that the coarser manufactures will be carried on entirely separate from the finer. A large hydraulic lift has been put in, and runs from the cellar to the roof. Those who wish to get ahead of this enterprising firm will have to be up long before the dew is off the grass.

CHICAGO.

This city is passing through another epidemic such as it experienced last winter. Every other man has the "grip," and those who have not are either just coming down with it or getting over it. The death rate is enormous, two hundred deaths having been reported in one day last week. Of course the druggists have their hands full; but, to make matters worse, they, too, are not exempt from the prevailing malady, and are struggling along with short help. One prominent store on the West Side had eighty prescriptions unfilled at 9 o'clock one evening, all of them to be delivered that night. It is unnecessary to state that some of the patients had to wait until next morning for their medicine. This state of affairs is especially noticeable in the wholesale trade, one house having sixteen men away at one time. The wholesalers being crippled, it has been hard to get orders filled promptly. But with the advent of warm and pleasant weather *La Grippe* is disappearing, and lots of overworked prescription clerks are breathing sighs of relief.

An unpleasant incident occurred the other day at the Illinois College of Pharmacy, showing that the color line is drawn even in pharmacy. Among the students entering for admission to the college were three young men from Tennessee, who seemed to think that nothing was quite good enough for them, and who had incurred the dislike of the other students before they had been in the college twenty-four hours. One of the new members this spring is a young colored man, also from Tennessee. He is an unusually bright fellow, and has a preliminary education far above the average student. He is quiet and gentlemanly in his manner, and will make his mark in the world, if he has half a chance. It did not take the three young would-be aristocrats long to find him out. Perhaps they discovered his superiority. At any rate, they reported their "discovery" to the dean of the college, and demanded the colored man's dismissal. Prof. Oldberg of course refused, and the trio turned in their resignations, leaving the college amid the jeers of the other students.

A disastrous fire occurred early Saturday morning, March 14th, totally destroying the wholesale drug house of Humiston, Keeling & Co., 145 Lake street, and the manufacturing establishment of the Wheeler Chemical Works. It started in some unaccountable manner on the third floor among the liquors, and was accompanied by a series of loud explosions which seriously hindered the firemen in their efforts to prevent the spread of the flames. The loss is estimated at $75,000, on which is insurance to the amount of $111,000. The building was owned by C. G. Wheeler, of the Chemical Works. His loss on pharmaceuticals is heavy, and but partially insured. Humiston, Keeling & Co. have leased the building at 200 and 202 Madison street, and are now actively engaged in restoring their business to its former prosperous condition.

Notwithstanding the action of the Retail Druggists' Association in regard to signing the contract sent out by C. I. Hood & Co., Chicago druggists are gradually falling into line, and one by one are depositing their autographs with their wholesale druggist. It is easy to make a speech denouncing manufacturers and advocating boycotting their goods, but the average retailer hates to lose sales, and a few calls from customers for the boycotted goods usually bring him to time.

The trade will be pained to hear of the death of Charles H. Sargent, who died March 11th at his home on Kenwood avenue. He was the only son of E. H. Sargent, and a member of the firm of Sargent & Co. He had been a sufferer from consumption for two or three years, and had travelled considerably in the West and South seeking relief; but when he returned last fall it was generally believed that the end was not far off. He was extremely popular in the circle in which he moved, and leaves a host of friends to mourn his death.

J. H. Hogey, the South Side druggist, is being sued by Sarah I. Jones for $10,000. She claims to have been poisoned by some essence of peppermint which she bought at his store. Mr. Hogey states that she did not call for or receive peppermint, but that she wanted something to cure cramps in the stomach, and he gave her a dose of Squibb's Diarrhœa Mixture.

A fire which started in the basement of R. E. Rhode's drug store the night of March 18th destroyed $1,000 worth of goods and nearly suffocated a woman living in a flat over the store. Mr. Rhode was sick at the time, and has not been able to get around yet.

C. B. Allen died March 23d of pneumonia. He had been sick but a short time, and it was thought that it was merely an attack of *La Grippe*. Mr. Allen was an old and respected druggist. He moved to his present store about two years ago, but he had been, previous to that, for ten years at the corner of Illinois and State streets.

G. W. Maerklin, for many years with J. I. Schimek, is about to open a new store at 18th street and Blue Island avenue. Mr. Maerklin was brought up in this neighborhood and is a thorough druggist. There is no reason why he should not succeed.

G. G. Shauer has returned from his trip through Kentucky and the South. While away he visited the Mammouth Cave, and has some pretty big yarns to tell about what he saw there.

Dale & Sempill had another fire the other day. It was caused by rats which had gnawed into a box of matches. Although an alarm was turned in, the blaze was extinguished before any damage had been done.

Mr. Henry Rogers has returned from Las Vegas Hot Springs. He reports the weather colder down there than we have had here.

The Chicago College of Pharmacy has filed a certificate with the Secretary of State reducing the number of its directors from sixteen to ten.

Herman Breves will shortly open a new store at 336 West 12th street. This building until recently, was occupied by Kessler & McKay, who are now at 279 South Halsted street.

F. P. **Handtman**, having sold his store on South Halsted street to his brother Charles, has bought Armbrecht's Pharmacy at 724 West Lake street.

Mrs. Elizabeth Vaupell, mother of W. R. Vaupell, and sister of Geo. H. Ackerman, died Tuesday evening, March 24th.

The Wheeler Chemical Works, since their fire, have been temporarily located in the Chicago College of Pharmacy building on State street.

Chas. Truax & Co. have increased their capital stock from $100,000 to $200,000.

I. **Giles Lewis** has returned from his Southern trip.

Thos. E. Diamond is away attending his brother Fred, who is seriously ill.

J. F. **Coleman** & Co. will move into their new store, at Chicago avenue and Market street, about May 1st.

C. H. **Truesdell** has just returned from a two weeks' jaunt through the South.

Emil Otto, of 649 West 21st street, sold his store to Otto Caltzau, the Archer avenue pharmacist.

A. S. **Cowan** has opened a new store at North Clark and Maple streets.

Geo. Lenz & Co. have purchased the pharmacy located at 29th and Wallace streets, formerly owned by A. Kettering.

A son of Prof. Attfield, of England, who is making a tour of the United States, stopped in this city for several days.

Dr. Shugart disposed of his store at Ogden avenue and Harrison street.

The **Chicago College of Pharmacy** held a meeting March 17th, the regular annual meeting under the new constitution. W. K. Forsyth was re-elected to the presidency, and the following were chosen as trustees: Emil A. Zahn, Adolph G. Karpen, Adolph T. Fleischer, Richard C. Frerksen, Charles L. Feldkamp, Andrew Scherer, Hugo W. C. Martin, Edward K. McPherson, Emil Thiele, and Otto J. Hartwig. At the meeting of the new board of trustees Mr. Martin was elected vice-president; Mr. Frerksen, secretary; Mr. Scherer, treasurer; Mr. Zahn, chairman of the lecture committee; and Mr. Karpen, chairman of the business committee.

Joseph Pigall, Edwin Felter, and **George K. Hermann**, all graduates of the Chicago College of Pharmacy, recently received their degrees from the Rush Medical College as doctors in medicine.

C. E. **Riess** sold his store at 39th and Vincennes avenue to Mr. Muehlmann.

Dr. Holroyd has purchased the store at 18th and Wabash avenue, owned by Max Richter, recently deceased.

D. H. **Galloway** is now clerk for T. N. Jamieson, 39th and Cottage Grove avenue.

Chris. Whitley has disposed of the Boulevard Pharmacy, Cottage Grove avenue and Oakwood Boulevard, to Frazier Hurlburt.

Ben. S. **Cooban** has purchased the store at 63d and Wright streets, formerly owned by J. M. Rausch.

Hisgen Bros. have opened a new store at 69th and Wentworth avenue.

The firm of **Krueger & Schneider** has dissolved, Mr. H. Schneider succeeding to the business of the firm.

The title of the drug firm at 6110 State street has been changed from Rogers & Stannard to Stannard & Johnson.

J. H. **Sissler** has sold his store at 51st and Wentworth avenue to Mr. Putnam.

The firm of **Coldthurst & Leach** has disposed of the pharmacy at Van Buren and Loomis streets to H. Sherman.

Edward Riegel has purchased the store at 363 West Chicago avenue, formerly owned by Martha Dunkel.

Frank C. **Bush** has opened a new store at 1124 63d street.

KANSAS CITY.

The Missouri Board of Pharmacy held its regular quarterly meeting at the Midland Hotel on the 6th and 7th of April, and examined ninety-two applicants for registration, of whom twenty-four were granted certificates, namely: W. P. Bentz, St. Louis; J. L. Bogarth, La Grange; P. Buchert, Kansas City; W. A. Cuffe, Carl Junction; H. W. Caffield, Bonne Terre; L. D. Davidson, St. Joseph; E. Dunlap, Miami; C. A. Ellis, Marysville; M. F. Faulkner, Rolla; E. C. Fair, Versailles; T. H. Fischer, Marshall; C. H. Funk, Stanberry; M. E. Ferguson, Kansas City; G. Graves, Garnett, Kan.; J. Hardacre, Kansas City; J. C. Houser, California; J. L. Gantis, Kansas City; A. C. Kelley, Cameron; S. J. Keiffer, Kansas City; J. C. Maxsom, Kansas City; D. Moffat, Kansas City; J. L. Otterman, Kansas City; E. Thomm, Bonne Terre; and A. Tamm, Sedalia.

The following were registered upon presentation of diplomas, without examination, all being graduates of the Kansas City College of Pharmacy: H. W. Maloney, J. Chandler, J. A. Brinkley, and F. W. Swope.

The Board does not recognize diplomas from departments of pharmacy of State universities.

At the last meeting of the Alumni Association of the Kansas City College of Pharmacy, the following officers were elected: Claude C. Hamilton, president, re-elected; J. R. McGeorge, Council Grove, Kan., first vice-president; Benj. C. Howard, second vice-president; Otto W. Lowe, third vice-president; Chas. W. Neal, secretary, re-elected; F. Leslie Joy, treasurer, re-elected. Executive Board: One year, F. W. Swope, M. J. O'Keefe; two years, H. W. Moloney, F. Leslie Joy; three years, Susie Holzinger, C. W. Neal.

Arrangements were made to have new certificates of membership engraved, and a committee appointed to arrange a series of social meetings for the summer.

The Pharmacy Bill failed to pass after all our hard work, and our boys are disgusted and sore over their defeat. The bill was killed in committee. An effort will be made to bring it before the Senate at the special session next fall. For all that, the K. C. boys are deserving of much credit for making such a *long* bill so near completion, and Dr. Corcoran and others have shown themselves to be lobbyists worthy of any foeman's steel.

At the last meeting of the K. C. Pharm. Assoc., Messrs. C. E. Corcoran, H. Y. Riddle, and J. A. Gallagher were appointed a committee to draft letters of approval of the "coupon plan," and send to Mr. Kline, chairman of the Committee on Proprietary Articles (which meets in New York April 23d), and to the various pharmaceutical journals. The committee is of the opinion that the coupon plan will never be adopted, but are earnestly working in its favor.

The Board of Public Works is having analyses made of water from the different wells of the city. The work is being done by Professors R. R. Hunter and C. C. Hamilton, of the College of Pharmacy.

E. M. **Vanderpool**, Ph.G., formerly with Dr. Jones, 331 and Troost ave., now seeks his fortunes in the drug business at Clinton, Mo. J. F. Chandler, Ph.G., succeeds him at his old stand. Success to both of them!

At 313 Stewart avenue, on Wednesday, April 25th, a very pretty wedding occurred, wherein Mr. Charles F. Smith, the Edgerton Place druggist, and Miss Carrie J. Walker, of Minneapolis, Minn., were united in marriage. The happy couple will take up their future residence in this city. The groom is a prosperous young business man, and the bride is highly spoken of by a host of acquaintances in this city. The best wishes of the **American Druggist** to both of them!

Mr. James R. **Fox** has opened a new drug store at Westville, Mo. His outfit is brand new, and we predict for him success, for there is not a better business man in the State.

Mr. A. J. **Eicholtz**, of Minneapolis, Kan., was in the city the 11th. He is attending the State University at Lawrence this session, and will be in our city next winter as a student of the K. C. College of Pharmacy.

Mr. McBride, formerly with Beck & Swearingen, 6th and Walnut Sts., is now with Wirthman Bros., 17th and Grand ave.

J. Tandy Ragland takes his place with Beck & Swearingen. Success to both gentlemen in their new positions!

T. F. Allen, the enterprising druggist of Liberty, Mo., was the guest of relatives in the city last week.

J. C. Lams came from Napoleon, Mo., to increase his stock of drugs and druggists' sundries. He reports business good in his city.

C. D. Cravens was a guest of the wholesale trade on the 1st. He owns a thriving drug store at Prathersville, Mo.

P. J. Humbrete, of Liberal, Mo., has been in our city several days.

Mr. Holman, of Lewis & Holman, Ellis, Kan., represented his firm here this week.

C. A. Hallman, of Anthony, Kan., was in the city on business the 1st. He is one of the successful druggists of the "Sunflower" State.

C. W. Eberts has just bought a drug store at Missouri City, Mo., and has been in the metropolis replenishing his stock. Success to him and his new stock!

J. N. Barnes, of Liberty, Mo., visited Kansas City both on business and for pleasure. He claims no relation to "Mr. Barnes of New York."

Frank Peake represented Peake Bros., of Pratt, Kan., among our wholesale brothers last week.

H. G. Welsh, of Peru, Kan., visited the city on the 19th.

E. M. Kraum, Emporia, Kan., showed his pleasant visage here on the 25th.

Talk about doctors' prescriptions being hard to read! It is said of one of our young physicians that he carelessly left one of his ℞'s upon the piano, when by and by his wife came in and played several measures from it, declaring that, as far as it went, it was equal to "Mad" Wagner's greatest, and wondered where she could get the rest of the piece.

Harvey W. Maloney, Ph.G., has opened a new drug store at Shawnee, Kan.

The "Parlor Drug Store" has been removed from Independence and Park avenues to the corner of Independence avenue and Prospect. His many friends will still find Mr. Parker in charge.

Mr. G. Frank has sold his handsome pharmacy, 12th and Campbell streets, to Dr. Herbst, formerly at 14th and Cherry.

One of our suburban druggists has this suggestive sign swung out boldly over his own: "*Where Will You Spend Eternity?*" It is not his fault, however, as Christian Scientists hold their "séances" in the upper story.

Mr. Swearingen, of the firm of Swearingen & Williams, Rinehart, Mo., was in the city last week visiting the wholesale trade.

Dr. Peirce, of Peirce & Brown, Kearney, Mo., paid our city a business visit and increased his stock accordingly.

Harlow White opens up an entirely new stock of drugs, with new fixtures, at Stewart City, Mo. Of course he will succeed.

Mr. Geo. T. Lynn, secretary of Meyer Bros. Drug Company, has been absent on a business trip to St. Louis.

C. L. Cravens, local secretary of the Mo. Pharm. Assoc., at Excelsior Springs, has embarked in the banking business.

The pleasant and ever-popular J. B. **Paul** is now at Hardisty's, 12th and Cherry.

Dr. G. W. Fraker, Excelsior Springs, Mo., has bought a complete outfit for experiments in analytical chemistry, and will make his own analyses hereafter. And why shouldn't he? He has taken the laboratory course at the University Med. Col.

The drug store at 532 Walnut has been removed to Parsons, Kan.

ST. LOUIS.

At the graduating exercises of the St. Louis College of Pharmacy, on the 25th of March, diplomas were given to the following-named gentlemen: L. J. Berli, St. Jacob, Ill. (prize for best examination in theoretical pharmacy); E. A. Bernius, Mascoutah, Ill.; F. P. Carey, St. Louis; J. P. Conklin, Santa Fe, N. Mex. (prize for best record and examination in practical chemistry); H. Eswin, St. Louis; E. Feickert, St. Louis; F. C. Garthoffner, Boonville, Mo.; J. E. Gutridge, Calhoun, Mo.; W. P. Hicks, Henderson, Ky.; J. B. Hill, Licking, Mo.; W. P. Heinrich, Mascoutah, Ill.; M. L. Holloway, Middletown, Pa. (alumni gold medal for best examination in all branches; prize for best examination in pharmacognosy; prize for best work in pharmaceutical manipulation); O. B. Ilch, Alton, Ill.; W. F. Kahre, Evansville, Ind.; H. C. Kalbfleisch, Collinsville, Ill.; J. B. Kenney, Larimore, N. Dak.; H. A. Kunz, St. Louis; J. F. Matlock, Kahoka, Mo.; J. A. Matthews, Alhambra, Ill.; E. J. May, Burlington, Ia.; E. A. Medler, Florissant, Mo.; C. W. Nau, Yorktown, Tex.; J. J. Ohning, Evansville, Ind.; G. C. Paulus, St. Louis; R. C. Reilly, St. Louis; J. O. Rowles, Hot Springs, Ark.; E. R. Russell, California, Mo.; R. E. Schlüter, St. Louis (prize for best examination in microscopical technology); F. W. Schmalmaack, St. Louis; H. W. Schulz, Wellsville, Mo.; E. A. Schwenker, St. Louis; A. C. Smith, St. Louis; G. W. Smith, Potosi, Mo.; L. R. A. Suppan, St. Louis; J. H. Temm, St. Louis; G. Waller, Jr., St. Louis; W. Wehrenbrecht, St. Louis; J. A. Weipert, Litchfield, Ill.; J. B. Wolters, Jefferson City, Mo.; W. Zapf, Springfield, Ill.

A regular meeting of the Executive Board of the Alumni Association, St. Louis College of Pharmacy, was held on Tuesday, March 3d. The following new members were elected: Wm. R. Clark, Theodore Ilg, Wm. C. Waldeck, Louis F. Grewe, all of St. Louis. The secretary was instructed to have a copy of the alumni membership certificate filled out, framed, and hung in the college library. It was ordered, on the recommendation of the former president, Dr. Whelpley, to obtain the addresses and occupations of all the members of the association, to be then inserted with the list of members in the next college prospectus.

The president presented the following list of standing committees for the coming year: Publishing Committee, J. C. Falk, M.D., T. A. Buckland, Professor J. M. Good; Papers and Queries, H. M. Whelpley, M.D., Gus. H. J. Andreas, Benj. J. Otto, Fred. Lang, G. H. Scheel, L. E. Frost; Committee on Constitution and By-Laws, C. M. Nicholson, Richard Kring, Theo. A. Klipstein; Committee on Library, Thos. A. Buckland, F. A. Temm, M.D., H. J. Hilby; Memorial Committee, J. W. Tomfohrde, Gustav Brandau, B. J. Ludwig; Committee to Confer with Students, H. M. Whelpley, M.D., J. C. Falk, M.D., T. A. Buckland, Gus. H. J. Andreas, C. M. Nicholson; Delegates to A. P. A., Professor J. M. Good, H. M. Whelpley, M.D., Chas. Gietner, O. A. Wall, M.D., Dr. Enno Sander.

CINCINNATI.

At the nineteenth annual commencement of the Cincinnati College of Pharmacy, held on March 19th ult., degrees were conferred upon H. Bristle, A. Brüggemann, W. Dennison, A. B. Devers, J. G. Eger, W. A. Eimer, F. H. Freericks, F. Grothe, W. C. Harris, A. S. Hills, L. G. Hofmeyer, T. S. Jordan, A. F. Kirstein, W. F. Knemöller, O. Laist, Jr., R. W. Mitchell, F. J. Renner, R. F. Ruppiler, A. Sander, Jr., A. M. Schwallie, O. Stephan, F. W. Stifel, J. L. Vine, and R. E. Wilson.

KENTUCKY.

The fourteenth annual meeting of the Kentucky Pharmaceutical Association will convene in this city (Frankfort) Wednesday, May 20th, at 3 P.M.

It is hoped that every pharmacist in the State will make a reasonable sacrifice to attend this meeting, which promises to be full of matters of practical interest.

A full attendance is especially urged, as the advisability of attempting to have an amendment to the pharmacy law passed by the next General Assembly, making the law apply to the whole State, will be thoroughly discussed, and some definite course of action agreed upon.

AMERICAN PHARMACEUTICAL ASSOCIATION.

(SPECIALLY REPORTED BY TELEGRAPH.)

First General Session, held April 27th, 1891.

The meeting was called to order at 3:30 P.M., President Alfred B. Taylor presiding, and was opened with prayer by Rev. Dr. Snively.

Mr. A. K. Finlay, the Local Secretary, introduced Mayor Shakespeare, of New Orleans, who addressed to the Association a few words of welcome. Vice-President A. B. Stevens briefly responded on behalf of the Association.

Professor J. P. Remington stated that as the Louisiana Pharmaceutical Association was in session in the same building (Washington Artillery Hall), he thought it would be fitting for the Association to invite the members of that body to participate in the deliberations of the American Pharmaceutical Association, and to freedom of the floor. He moved that a committee be appointed to invite the Louisiana Association to attend the present session, which was carried, and the President appointed as such committee Remington and Dohme.

On the entry of the members of the Louisiana Association, President Taylor, addressing the president, Mr. Breslin, welcomed them to the meeting.

President M. T. Breslin, in his response, said: "We have been working long to establish a school of pharmacy here, and the deliberations of your Association will guide us and your support be of great assistance in our work."

PRESIDENT'S ADDRESS.

President Taylor then delivered his annual address. He congratulated the Association on the choice of its place of meeting, which had opened so auspiciously, the attendance being far greater than had been expected.

Referring to the increase in the number of schools of pharmacy, he observed that it was encouraging to find that out of forty-eight States thirty-five now have enacted laws for the protection of pharmacy, and that State associations have organized in thirty-seven States. The cut-rate problem is still disturbing the minds of the pharmaceutical fraternity. Numerous plans for remedying the evil have been proposed, but as yet none have been entirely satisfactory or entirely practicable. The question will be thoroughly discussed at this meeting, and it is hoped with good effect. In order, however, for any plan to be successful there must be union and harmony (applause); and it is the duty as well as to the interest, not only of our members but of all the pharmacists of the country, to indorse and cordially support any plan which may be approved. The co-operation of every pharmacist in the country is needed. Without such co-operation success cannot be assured. It is the duty of the pharmacist to supply the remedies to effect the therapeutical effects desired by the physician. Has not the time arrived when concert of action between the medical associations and the American Pharmaceutical Association should be made, to have prohibited by the national legislature the allowance of a patent for medicinal preparations? (applause). The vast majority of patent preparations are worthless, and are only brought into notoriety by extensive advertising. Such a restriction as that proposed would not keep from pharmacy the protection of any ingenious process, but would prevent the application of old methods to new accessions.

It will be remembered that the Committee on the Revision of the Pharmacopœia had last year decided that no substance which cannot be produced except under patent processes shall be introduced into the Pharmacopœia (applause). It is believed that only within the last thirty-five years has the United States Patent Office granted patents on medicinal preparations; the ground formerly taken being that such patents were opposed to public policy, and that the Commissioner of Patents was vested by law with the power of determining the usefulness or application of medicines of this character. It is well known that a number of so-called patent medicines are not patent, their ingredients being secret. The only way of dealing with such preparations is by the cultivation of a moral sentiment against their employment. It is for the Association to decide whether such a movement is called for, and whether it will be calculated to advance the character and influence of our honorable calling.

On motion, the recommendations were referred to the Committee on the President's Address, Messrs. Hurty, Trimble, and Fennell.

REPORTS AND COMMUNICATIONS.

Secretary Maisch requested that Dr. Curtman, of St. Louis, Mo., be allowed further time to prepare his report on prize essays, which was granted.

Mr. Parkhill moved that the Nominating Committee be directed to return the names of two nominees for each office, and that they be voted for by the Association in open session, instead of approving the choice of the Committee as heretofore. Such an arrangement would secure a more direct expression of the wishes of the Association.

Mr. Alexander protested against such a change being made, as unnecessary, and as likely to lead to a great waste of time and inevitable dissension.

On being put to a vote, the motion was unanimously voted down.

The minutes of the Council were read by the Secretary, Mr. O. K. Kennedy, and on motion duly approved.

On motion of Mr. Ebert, the President appointed a committee of five to report on the time and place of the next annual meeting.

Secretary Maisch suggested that action be taken on the amendment to the by-laws, made at the last annual meeting, providing for a Committee on Transportation.

After some discussion, on motion of Mr. Hallberg, it was agreed that the committee be composed of nine members, located in the principal railroad centres of the country, to secure special rates and facilities for members attending the annual meeting.

Prof. Oldberg, of Chicago, presented a communication from the World's Congress Auxiliary of the World's Columbian Exhibition, requesting the co-operation of the Association in securing a Congress of Pharmacy during the World's Columbian Exhibition in 1893.

Mr. Hallberg raised a considerable breeze by denouncing the tenor of the communication and its authors in unmeasured terms. Inasmuch as he had started the idea of the American Pharmaceutical Association bringing about such a meeting at the Chicago World's Fair at the last meeting, he thought it was presumptuous in the persons mentioned to take the honor upon themselves and to leave him without recognition. He had labored earnestly, before Chicago secured the fair, to get it located in that city, and had spent time and money in that behalf. He was the originator of the idea of having the International Pharmaceutical Congress meet there. The persons mentioned in the communication had done absolutely nothing. He moved that a committee of five be appointed from the Association to attend to the interests of the proposed scheme, and that none of the persons named be included in it.

Mr. Whelpley.—A resolution was passed at this morning's session of the Council, recommending the Association, through its President and Secretary, to invite the International Pharmaceutical Association to meet in Chicago in 1893, and that a committee of five be appointed for that purpose.

Mr. Hallberg.—If that is the case I withdraw my motion.

Prof. Remington moved that the Association take no action until the report of the suggested committee was received, which was seconded and carried.

The President appointed as the committee to arrange the invitation to the International Pharmaceutical Congress Messrs. Remington, Gordon, Whelpley, Hollister, and Goode.

The meeting was then adjourned.

Number present: From Chicago, 40; St. Louis, 15; the East, 175; total number in attendance, 300.

The Second General Session, held April 28th.

The meeting was called to order at 9:45 A.M.

Sixty-three new names were added to the list of active members.

The chairman, C. Lewis Diehl, of the Committee on National Formulary, reported that that Committee had found it unnecessary to prepare any further edition, and his report was received.

The Committee on Metric System reported in favor of petitioning Congress to adopt the metric system as a basis for weights and measures, and the committee was authorized to present such memorial to Congress.

Mr. Alexander then submitted from the Committee on Nominations the following names for officers: *President,* Alexander K. Finlay, of New Orleans; *First Vice-President,* George J. Seabury, of New York; *Second Vice-President,* Willard H. Torbert, of Dubuque, Iowa; *Third Vice-President,* L. T. Dunning, of South Dakota; *Permanent Secretary,* J. M. Maisch, of Philadelphia; *Treasurer,* S. A. D. Sheppard, of Boston; *Reporter,* Dr. Charles Rice, of New York; *Members of Council,* Messrs. Goode, Fennell, and Conrad.

The Secretary cast affirmative ballots for those names, and they were declared elected.

A resolution was passed and a committee appointed to prepare a suitable document to be presented to Mr. C. Lewis Diehl on his retirement, through ill health, from the position as Reporter on the Progress of Pharmacy.

The report of the Publication Committee was received and approved. It was an able report, and besides showing the number of documents, etc., published, stated that the old volumes of the Proceedings were now offered at reduced price to members desiring to complete their sets.

Professor J. P. Remington emphasized the value that these back numbers offered to druggists, and made a motion that the Committee on Publications be instructed to again reduce the price, so as to enable every druggist to obtain complete sets, which were not so much a help to the Association as to the man who buys them.

The motion was carried unanimously, and includes all the volumes from the date of the formation of the Society, in 1852, to the present day.

The secretary of the Committee on Membership then read his report, showing that at the last annual meeting there were 1,274 members on the roll; that there had been elected since then 95 members; received as delegates, 13; that during the year 61 members had resigned, 26 dropped from the rolls, 9 died, leaving a total membership of 1,286 at present date. There are 23 honorary members, 1 having died during the past year, viz.: Henry B. Brady, F.R.S., of Newcastle-upon-Tyne, England.

The Treasurer's report was read and approved, also the Auditor's report and that of the Examining Committee. The report showed a balance of $4,744.49 on hand; the receipts having amounted to $9,206.39, and the expenditures to $4,461.90, from July 1st, 1890, to March 15th, 1891.

The invested funds in the custody of the Chairman of the Council, J. M. Good, amount to $12,230.88, which are divided into the Ebert fund, $759.82, centennial fund, $1,463.72, and the life membership fund, $10,007.34, all of which are invested in United States bonds and securities.

An amendment was offered in regard to the formation of the Committee on Transportation. Considerable discussion ensued, and a motion to reconsider was then substituted, and it was decided that the selection of this committee be left to Council, as also the selection of the chairman and the filling of vacancies.

PLACE OF MEETING.

The Committee on Time and Place of Meeting, through the Treasurer, Mr. S. A. D. Sheppard, read a letter from Denver, Colorado, asking that that city be selected as the place of the next annual meeting. The committee reported that they would recommend the Crawford House, White Mountains, as the next place of meeting, on the second Monday in September, 1892.

Strong efforts were made to adopt Galveston as the next place of meeting by C. W. Preston, of that city; of Cresson Springs, Pa., by Philip C. Candidus, of Mobile, Ala.; of Nashville, Tenn., by Oscar Oldberg, Chicago; of New York City, by Arthur Bassett, Detroit; of Denver, by Charles M. Ford, of that city. After taking the sense of the meeting upon the various cities mentioned, Cresson Springs, in the Allegheny Mountains, Pa., was selected as the next place of meeting, and the time for meeting to be the second Monday of September, 1892, the Council having power to change the date, if it finds it for the best.

The committee to whom was referred the President's address presented their report, and recommended the various suggestions offered in that address. The session then adjourned to 2:30 P.M.

SECTION ON COMMERCIAL INTERESTS.

The first session was opened at 3 P.M. Henry Canning, Chairman, presided.

The Chairman delivered a very interesting address dealing exclusively with the matter of rate-cutting, and the means of preventing it. The conference with State Pharmaceutical Associations, he said, which was proposed at the last annual meeting, to ascertain local grievances, had not been carried out yet, owing to the later season at which such organizations met. The result of the representation of the American Pharmaceutical Association at the meeting of the National Wholesale Druggists' Association, and the subsequent conference between the wholesale, retail, and jobbing interests, had resulted in the adoption of the coupon plan for the maintenance of rates. This plan had signally failed, it having been found impossible to protect all sections with it. There were also legal obstructions in the way, as it seemed to be in the character of a Trust, and any similar plan might meet with the same difficulty. If that is the case, the question resolves itself into this: That the manufacturers must protect their own goods from the manufactory to the consumer. One plan in this direction had been evolved—that of the C. I. Hood & Co., which was the only plan adopted during the year and carried through, and was in the nature of a contract between the manufacturer and the retailer. Hood & Co. had invested an enormous amount of money in the scheme.

It had met with antagonism from many quarters, however, because it seemed on the face of it as though it were to establish two prices, an 83-cent price and a dollar price. Hood & Co., however, could not be expected to stand out for a dollar while kindred preparations were to be had for sixty-five cents. It is a foregone conclusion that that article would be boycotted by the cutter. This plan met with objections, and was slashed right and left. Mr. Hood stuck to it as long as he could, however, invested thousands of dollars to carry it out, and finally, because the parties to whom it was intended to be a convenience, by their resolutions and actions throughout the country, said they did not want it, he withdrew and put in no more money. How far Hood's action will militate against any future plan brought forward cannot be determined, but it is a fact that any plan to be successful must be as satisfactory to all in sections where rate-cutting is carried on as in sections where such is not now the case, and must have the solid support of the entire retail trade. Two or three plans are ready to be submitted to the meeting. Mr. Seabury has a plan, J. C. Ayer has one, and the *Pharmaceutical Era* another. It is understood that the manufacturers represented in the National Wholesale Association have agreed that any plan adopted by the American Pharmaceutical Association would be followed by them. But care must be taken that the plan adopted is acceptable to all interests, for a one-sided scheme will fail as heretofore.

An acceptable plan would be to have a strong committee take all the plans presented, and, taking the best features of each, form one which would be likely to succeed, and present their report in time for publication in the Proceedings. He suggested that the American Pharmaceutical Association pay the expenses of the committee, which, after transacting business by correspondence, could meet for a final decision.

Mr. Alexander.—It seems to me that the retailers should establish a rate, so as to boycott all those who cut the fixed standard price.

The Chairman.—The dealers, it seems, have undergone a revulsion of feeling in Boston, where the market has been changed by the action of C. I. Hood & Co., which has been indorsed. A mass meeting was held, and before it the plan, as formulated by Mr. Hood, was presented, and cutters were told that they should handle goods at a fixed rate or not at all. In Boston the members of the Association were glad to get the standard up to 83⅓. It was a big jump—half way from the cut rate to the dollar.

Mr. Alexander said he could see no use in discussing the Hood plan further, as it had been withdrawn.

Mr. Sheppard read a telegram received from the Massachusetts Pharmaceutical Association, urging the American Pharmaceutical Association to adopt the Hood plan on the dollar basis.

It was moved that the recommendations made by the Chairman in his address be adopted. A motion to approve the recommendations of the Chairman was duly carried.

Mr. Seabury stated that he had been requested by the St. Louis Association and other organizations to represent them. The Association of Manufacturers and Dealers in Proprietary Articles, at its last meeting, passed a resolution in which it agreed to support any practicable plan for the prevention of cutting that is formed by the American Pharmaceutical Association. They further agreed that they would not sell to tradesmen, wholesalers, or cutters who violated any part of a plan so indorsed; and they further suggested that every State and local association indorse this action of the American Pharmaceutical Association, whose organization is founded on State societies.

Considerable discussion followed the submission of this resolution. Messrs. Torbert and Hollister arrayed themselves against Mr. Nattans, who favored the rejection of the resolution. The opposition to the passage of the resolution was finally withdrawn, and Mr. Torbert's position was sustained.

Mr. Seabury spoke at length on rate-cutting. He read a long and interesting though somewhat ancient pamphlet written by himself on the question at issue. He denounced in unmistakable terms those retailers who knowingly sold drugs or preparations to cutters of rates or trades other than that of pharmacy. He favored cohesion among the craft as the means of putting a stop to the cut in the rates, and advocated the tripartite plan—a measure by the prevalence and adoption of which he hoped that the desired end could be realized at the speediest time practicable. Other labor and trade organizations were a unit, and he saw no reason why the druggists did not stick closely to one another. He advocated the passage of such resolutions, or the adoption of such measures, as would best bring to the attention of the Boards of Pharmacy of the country the necessity of doing away with the meddlesome body—the "muslin druggist." They were without license to sell their goods, and he was of opinion that they could be amenable for violations of the laws requiring all dispensing clerks to be licensed. He closed by asking his fellow-members to exert themselves and vie with one another in trying to drive out of the Association the vandal and parasite which is at present a part of the pharmaceutical craft.

Mr. Robinson, on behalf of the J. C. Ayer Co., presented their plan for the prevention of the cutting of rates. He said that his firm had made it one of the cardinal features never to knowingly furnish goods to any but the druggist, or to trades other than the drug trade.

Mr. Seabury expressed the opinion that all of the plans had their good and bad features, but thought that too many spigot holes had been left. He held that the Ayer plan would not prevent the goods sold to legitimate druggists from falling into the hands of the scalpers, despite the contemplated system of numbering goods sold by the Ayer plan.

On motion of **Mr. Ebert** the plans were ordered received and tabled until a future time.

Mr. Holtzhauer asked Mr. Robinson whether the agreement was, in his opinion, a good one, and, on being answered in the affirmative, asked again what could be done if a rate cutter bought from a jobber at full retail rates, but received, in lieu of a deduction, a line of goods other than those named in the contract. This, he said, was being done.

Mr. Robinson was at a loss for an answer, not having considered that side of the question; but, finding the laugh at his expense, said that he was surprised that the gentleman had not, as a duly authorized member of the profession, notified the organization of such a state of affairs. He did not consider that Mr. Holzhauer had acted in good faith, and said as much, though that gentleman said that he had made report on the subject.

Mr. Nattans took Mr. Holzhauer's part in a very warm manner, and during the course of his remarks said that he, for one, did not propose that any employee of a patent firm should be allowed to assail the members of the Association by advising them to turn State's evidence. The speaker then went off at a tangent and spoke of the details of the cut-rate principle. He was called to order abruptly by the Chair, and, in answer to the call to order, said that he considered that the question was open for discussion, and, though he might be treading on some one's toes, he did not wish to do so, except in a general way.

Mr. Ebert moved a vote of thanks be tendered the J. C. Ayer Co. for their efforts in behalf of the retailers, which was amended by **Dr. James** to the effect that thanks be given to all who are manifesting this disposition. The motion as amended was seconded and carried.

Mr. Ebert said no plan could make an honest man out of a rascal. If certain stores gave away drugs and preparations as an advertising attraction, how could it be prevented? He would ask Mr. Robinson whether his firm was able to trace their goods. Receiving an affirmative reply, he continued that if this could be done, and the wholesaler find to whom he is selling, his plan would be to charge for Ayer's Sarsaparilla $12 a dozen, less 40 per cent, or whatever per cent it is to make this price. Let the wholesale trade charge us $10, less so much per cent, so that a man who is known to be a cutter, who wants to buy goods of the wholesale house, will have to pay $12 a dozen for it. Understanding that a similar plan would be presented in writing, he would not proceed further, but merely recommend it.

Mr. Hallberg presented the following resolution:

Resolved, That a committee of five, consisting of one member each from Boston, New York, Philadelphia, Chicago, and St. Louis, be appointed to formulate a plan for the prevention of cutting of prices in proprietary medicines, and to represent the American Pharmaceutical Association before any properly constituted committee of the Manufacturers' Association and the National Wholesale Druggists' Association. The plan must be based on the following propositions:

1. Full and uniform prices must be maintained.
2. That a plan must not contain any proposition increasing the wholesale prices of goods to retailers.
3. It must not contain any special inconvenience to the retailers.
4. It must be capable of execution, and before final indorsement must stand any test likely to be required of it.
5. But when the plan is finally perfected, and indorsed by the proprietors and wholesale dealers, this committee have power to enforce it through the members of these representative associations.
6. That this section requests the American Pharmaceutical Association to pay the expenses of one meeting of this committee.

After remarking that the discussion on the subject could be kept up forever, **Mr. Torbert** moved a reference of all the plans to a committee vested with power to examine them, and from them frame a plan suitable to every one's desires, or as near that mark as possible.

Considerable discussion arose on Mr. Hallberg's resolution, and another motion was submitted, whereby it was proposed that the chairman of the section appoint a committee of nine members, who should consider these and all other resolutions presented. It was finally decided that the membership of the committee proposed should be nine, who would be instructed to report at a future meeting. Chairman Canning was named as chairman of the committee, and he appointed the following; Torbert, of Iowa; Sohrbeck, of Illinois; Remington, of Philadelphia; Bassett, of Detroit; Seabury, of New York; Main, of New York; Sheppard, of Boston; and Alexander, of St. Louis. The nominations were approved, and an invitation from the Louisiana Historical Association to visit the Memorial Hall, read by President-elect Finlay, was received, and a vote of thanks returned.

Adjourned to meet at 9 o'clock the next morning.

The Second Session of the Section on Commercial Interests was called to order shortly after 9 o'clock Wednesday morning by Mr. Henry Canning, the Chairman; Mr. W. L. Dewoody acting as Secretary.

There was fair attendance in the hall at the time, though the crowd was not as great as that during the first meeting of the Convention.

A communication was presented from Messrs. Finlay & Brunswig, the local druggists, in which they denied the right of Battle & Co., of St. Louis, to claim the patent right on a certain preparation made by Finlay & Brunswig.

The communication was the basis of a long discussion, and, after the subject had been thoroughly gone over, it was resolved that the communication be simply received and not published. A communication from the Retail Druggists' Association of Memphis was received and read. It had bearing on the cut-rate question, and was referred to the special committee appointed at the last meeting of the section. A like course was followed with a letter on the same subject from Mr. John B. Thompson, of Madison, Kansas. The committee to prepare a plan for submission to the Manufacturers and Dealers' Association submitted through Mr. Canning, its chairman, the following report on the subject. The section took up each condition of the report separately. Discussion arose in regard to the first condition, as to whether articles other than medicines were to be included in the plan.

Mr. Seabury stated that the manufacturers who had asked the Association to formulate a plan dealt exclusively in medicinal preparations and not other articles, but if manufacturers of other things sold by druggists desired to work under the plan, no possible objection could be made to their doing so.

The Chairman read the preamble to the report, concerning the adoption of which a great deal of talk ensued, until Mr. Seabury moved that a limit of three minutes be put to all remarks, which was agreed to. Many members opposed the condition that retailers be bound to selling the particular article called for, some insisting that the druggist was bound, in honor to the manufacturer with whom he agreed, to protect the prices on his goods; to sell what was actually demanded, and nothing else. A motion to adopt the preamble as read was finally adopted. The remaining conditions of the report were then unanimously adopted. The recommendation submitted to the Association of Manufacturers and Dealers in Proprietary Articles, with the view of aiding them in the work of solving the cut-rate problem, the details of the plan being left to the Association, was next taken up, and the remarks of the committee adopted. Criticism was made of the reference in the report of the committee to "ignorant persons" dispensing patent medicines, and the feeling of several members was that it was a slurring expression which could be well omitted. Several members deprecated the indorsement of patent medicines of any kind by the Association, as the pharmaceutical profession, on general principles, were opposed to them. It was suggested that a communication be made to the American Medical Association on the subject, and that the influence of that body against such preparations be requested.

Dr. James showed that doctors could not be induced to abstain from employing proprietary articles, many of which are invaluable in disease, such as antipyrin and similar preparations which physicians are continually employing. The committee's report was finally adopted as a whole.

The committee appointed to consider the following reso- n adopted by the Association of Manufacturers and rs in Proprietary Articles, April 23d, 1891: "*Resolved*, That the Association of Manufacturers and Dealers in Proprietary Articles will support any practicable plan for the prevention of cutting that is indorsed by the American Pharmaceutical Association. They furthermore agree that they will not sell to tradesmen, wholesalers, or cutters who violate any part of a plan so indorsed, and they further suggest that every State and local association indorse the action of the American Pharmaceutical Association"—reported as follows: *Whereas*, The indiscriminate sale of medicines by the ignorant and untrained is an evil of long standing, and public welfare demands medicines should be dispensed solely by experienced persons; *Therefore*, It is the sense of this Association that medicines should be sold only by druggists who have been educated to properly perform their respective duties. We therefore recommend that the proprietary articles be sold hereafter upon the following conditions: Condition 1. Manufacturers and owners of proprietary preparations on the contract plan agree to sell their products to druggists only. 2. Wholesale druggists or distributing agents agree to sell contract goods solely to druggists, excepting in those localities where no druggists are in business. Wholesale druggists are not to supply any dealer on the cut-off list. Further, wholesale druggists agree not to substitute another article in any order presented for any article on the contract plan. 3. Retail druggists to sign an agreement, including all contract or rebate articles, that they will not violate the conditions of said agreement; further agree not to substitute another article for any article requested that is on contract or rebate plan, nor deliver such goods to any dealer on the cut-off list; and it is hereby provided that the names of all druggists who fail to sign the agreement be placed upon the cut-off list. 4. Under no consideration shall any manufacturer, wholesale druggist, or retail druggist, directly or by collusion, supply any proprietary preparation in the contract plan to dealers on the cut-off list. 5. Manufacturers, wholesale druggists, and retail druggists shall refuse to sell commission merchants, brokers, or agents any article on the contract plan, unless such sales are for export, or for purchasers who are removed from domestic competition. 6. Manufacturers and wholesale druggists, or distributers of articles on the contract plan, to agree not to sell such articles to any retailer of said articles who will not agree to sell at full retail prices. 7. Manufacturers of proprietary articles on the contract plan to make their contracts in such a manner as not to materially increase the purchasing price of the retailer. 8. Any wholesale druggist or retail druggist violating his contract shall be placed on the cut-off list, as a penalty of such violation. The principles here presented are submitted to the Association of Manufacturers and Dealers of Proprietary Articles, with the view of aiding them in the work of solving the cut-rate problem, the details of the said plan being left to the judgment of the said Association.

After the adoption of the report as framed by the committee, it was resolved by the Convention that it be the sense of the body that the committee as constituted by the chair remain in power until next year, and that it be vested with the authority of laying the report framed by it before the meeting of the Manufacturers and Dealers' Association at its next session. It was further resolved that the American Pharmaceutical Association pay the expenses of the committee at that time, and the sum of two hundred dollars was appropriated by the Association for that purpose.

Mr. William H. Torbert, of Dubuque, was elected Chairman, and Mr. Arthur Bassett, of Detroit, Secretary, of the section for the ensuing year.

Messrs. Charles M. Ford, of Denver, Charles Holzhauer, of Newark, and Geo. L. Heckler, of Cleveland, were elected to the other places on the committee.

A vote of thanks was tendered to the retiring officers of the section for the able manner in which they handled the affairs of the body in the past year, and short and appropriate remarks were made by the newly elected officers. The section then adjourned, to meet again at the next annual convention of the Association at Cresson Springs.

(Continuation of Report in next issue.)

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PAPERS READ BEFORE THE A. P. A.

The General Features of the Vegetation of Louisiana and Adjoining Region, and its Products, in Relation to Pharmacy and Allied Industries.

BY CHAS. MOHR, MOBILE, ALA.

ENTERING upon the warm temperate zone of this part of our common country, with a vegetation in many of its features strange and new to him, the observant visitor from Northern climes beholding them for the first time will not only be struck by their novelty, but will find his attention engaged by the productions of the vegetable kingdom of these lower latitudes in their relation to those of other parts of the globe, and particularly in their bearing upon the activity of man as they contribute to his necessities and comforts.

In response to the call upon the members of our Association, made by the committee on papers to be read before the meeting, to select some subjects presenting local features of interest to members from other localities and of importance to pharmaceutical literature, I have ventured upon the attempt to point out what might be considered of most interest presented by the various phases of the plant world of this subtropical zone, and to direct the attention of our visitors to its products of importance in their bearing on pharmacy and allied branches of industry.

We meet here in the realm of the magnolia, the palmetto, of the long-leaved pine, and of oaks, with evergreen or semi-persistent foliage. Favored by a clime of a range of temperature as free from the extremes of withering heat as from the blasts of severe frost, and by an abundant rainfall equally distributed through all seasons, conditions most favorable to the development of arboreal growth, the grand forests, covering yet in this pristine state a large area of the surface, are in their diversity and luxuriance only exceeded by those of the equatorial zone. The trees peculiar to lower latitudes are found here commingling with those that are equally at home in the Northern forests. Palms with short or creeping stems (*Sabal Adansonii*, *Lercnoa serrulata*), their fan-shaped leaves wavering under the impulse of the breezes from the Gulf, are growing under the shade of the pine, a tree form most prominent in the forests approaching the subarctic zone; the magnolia occurs side by side with the Northern beech, its dark, lustrous foliage standing in pleasing contrast with its Northern associate when attired in its early garb of the softer tints of liveliest green. An arborescent lily (*Yucca aloifolia*), called the Spanish dagger on account of its spreading, rigid, sharp-pointed, lance-shaped leaves, shares the ground with American holly (*Ilex opaca*), which also adorns the woodlands of the coasts of New England. Pines of a strictly Southern type contend for the possession of the soil with Northern oaks and hickories.

A similar blending of Southern and Northern plants is found to prevail among the crops of the fields and the garden. By the side of those originally derived from the subtropical zones in the different parts of the globe, producing the great staple products of this section, sugar, cotton, and rice, some of the most important field crops are raised successfully; and in the orchard the pear is found to ripen its fruit with the orange and the Japanese plum (*Eriobotrya Japonica*).

In the following a hasty sketch is attempted of the features that characterize the different regions of this zone as they are traversed in its descent to the Gulf, with a consideration of those products, indigenous to them or cultivated, deemed of most interest to us.

Following the great lines of travel from the North, east of the Mississippi River, the appearance of the magnolia and of the so-called "Spanish Moss," a true epiphyte, of the order of Bromeliads (*Tillandsia usneoides*), pendent in long festoons from the limbs and branches of oaks of Southern type, denotes that the warmer temperate zone has been entered (about 33° 30′ N. L.) On reaching Louisiana the subtropical forest, distinguished by the prevalence of broad-leaved evergreens of various orders, is presented in the fullest display of its characteristic features on the fresher and damper soils of the land rising above the level of the alluvial bottom and the marshes of the coast. The stately magnolia, reaching a height of from 70 to 80 feet, reigns here supreme, forming, with the laurel, water willow, and live oak, the black gum (*Nyssa aquatica*), red bay (*Persea Carolinensis*), the white bay (*Magnolia glauca*), the high forest, a host of trees of smaller size, in great variety, adding to its density; including the American olive or devil wood (*Osmanthus Americanus*), the titi (*Cliftonia ligustrina*), the cyrilla (*C. racemiflora*), the sweet leaf or horse sugar, the yapoon and dahoon (*Ilex Cassine*, *I. Dahoon*), wax myrtle or bayberry (*Myrica cerifera*), the farkleberry (*Vaccinium arboreum*), the snowdrop tree (*Halesia diptera*, and *Bumelia lanuginosa*), all typical forms of this subtropical forest. A number of shrubs, in no less variety, most of them adorned by a profusion of flowers, add to the beauty and interest of these woods. There the interesting American star anise (*Illicium Floridanum*), a calycanthus, rich blooming andromedas, azaleas, blueberries, the gorgeously blooming kalmia, fragrant storax bushes, a stuartia and clethra, unfold their flowers from spring to summer, all intertwined by numerous climbing and twining plants, among them, of peculiar interest to us, and most frequent, the yellow jasmine (*Gelsemium sempervirens*), and several species of bamboo briars (*Smilax*) render the dense undergrowth often absolutely impenetrable.

THE SOUTHERN PINES.

The highly silicious drift soils of the uplands are chiefly occupied by pines. The genus Pinus is represented in the lower Gulf region by five species: the short-leaved pine (*Pinus echinata*, *P. mitis*) and spruce pine (*P. glabra*), short-leaved species with two leaves in the sheath, and the small oval cones with a flat apophysis armed with a weak deciduous prickle, and their wood poor in resinous matter; *P. tæda*, *P. Cubensis*, and *Pinus palustris*, these last three forming a natural group of long-leaved species with three, or two and three, leaves in the sheath, gregarious timber trees of large size and highly resinous wood. On account of their resinous products the trees of the latter group merit our closer attention.

The loblolly pine (*Pinus tæda*). In Virginia and North Carolina this tree is found to predominate in damp, sandy soils of the coast region. It forms a considerable part of the forest growth on the tablelands of Alabama and in Northwestern Louisiana, and, almost purely, extensive forests in Western Texas to the limits of the Atlantic forest region. It prefers a damp, cool soil, and in the localities most favorable to its growth reaches a height of from 100 to 110 feet and a diameter of from 36 to 40 inches. As met with ordinarily the wood is coarse, wanting in the strength and durability that distinguish its allies. It yields abundantly a resin rich in volatile oil, and the tree is tapped whenever found within the precincts of the turpentine orchard.

The Cuban pine, slash pine (*Pinus Cubensis*). A West Indian species, most frequent in the flatwoods of peninsular Florida, and in South Carolina, Georgia, and in the Gulf States to Eastern Louisiana, it is confined to the coast plain. It raises its stately trunk to a height of over 100 feet. The wood is heavy, of great strength and durability, highly resinous, the resin richest in volatile oil and of great fluidity. This tree is of rapid growth, attaining the full dimensions of a full-sized timber tree within a century.

The long-leaved pine, heart or pitch pine (*Pinus palustris Mull.*, *Pinus Australis Michx.*). In economic value this pine takes the first place among the timber trees of the Southern States. The forests of this pine extend over the sandy and gravelly deposit of the Southern drift —the so-called pine barrens—without interruption, and cover, in the maritime pine belt of the Gulf States alone, an area estimated at 58,000 square miles, of which 6,400 square miles are located in Louisiana. This tree is provided with an enormous taproot; the tall trunk rises to a height of 90 to, rarely, over 100 feet, with a diameter of from 20 to 35 inches breast high. The massive limbs are contorted, diverging into comparatively few gnarled branches, with their foliage crowded in dense tufts at their extremity, forming an open, irregularly shaped crown. The trunk is found free from limbs for a length varying between 40 and 60 feet. Arrived at the fulness of their growth, the trees are from 200 to 250 years old. The leaves are 10 to 16 inches long, obtusely triangular, and arise from the axils of bracts fringed with long white hairs which, covering them in the bud, impart to the terminal shoots the silvery covering by which this species is distinguished from all others at every stage of its life. The catkin-like, staminate flowers form dense clusters around the summit of the youngest shoots; the female flowers are united in an oval short-stalked catkin, the shapely mucronate carpellary scales being almost totally hidden by their scaly bracts. The flowers appear about the middle of March; the cones mature in the fall of the second year and are of a dull leather color, about 8 inches long, conical in shape when closed, and slightly bent. The seeds are discharged during the latter part of the fall. The wood of this tree is heavy, compact, close-grained, and durable, unsurpassed among the pines in strength and elasticity, and is invaluable for heavy constructions. The timber resources of the forests of the long-leaved pine contribute largely to the industrial and commercial wealth of the Southern pine belt. During the year 1889 over 800,000,000 feet, board measure, of lumber have been shipped to foreign and domestic ports from the Gulf States alone.

With us the interest in this tree centres in its resinous exudation, the principal source of the spirits of turpentine and rosin entering the markets of the world. According to P. H. Dudley the wood contains on the average about 18 per cent, resinous matter. Prof. Mayr obtained from the sap wood, rich in volatile oil, 2.65 per cent of solid resin, and from the resinous heart wood, containing but a small portion of volatile oil, 11 per cent, the wood being absolutely dry.

The crude resin, or turpentine, with the tar and pitch, obtained from the long-leaved pine, figured in colonial times as the most important export from North Carolina to the mother country. In the infancy of the naval store industry the distillation of spirits of turpentine was carried on in iron retorts at the ports, the largest part of the crude resin, or turpentine, having been shipped to England. With the introduction of the copper still and its removal to the forest (1834), and the augmenting demand for its products, this industry increased rapidly and soon spread to the pine regions further south.

In traversing the forests of the long-leaved pine, the stranger, on his way to the coast, is struck with surprise on beholding the severe injuries inflicted upon the trees by the deep cuts made near their base. These cuts in the body of the tree and the excoriations above them constitute what are called boxes. Ten thousand of such boxes constitute a unit of work, called a crop; trees above medium size, according to their circumference, receive from two to four boxes. These reservoirs for the exuding resin are of the capacity of a quart. The operations in the turpentine orchard begin before the dawn of spring by the laying bare of the ground around the trees and the removal of all loose combustible material from it, which is raked in heaps and burned, in order to prevent the danger of fire during the coming season. As soon as the flow of resin begins, the excoriations are made on the surface of the trunk above the boxes to a height of eight inches, which are gradually increased, by a few incisions repeated every week (chipping), by two to two and one-half inches for every month to the close of the season. During the first two seasons the boxes are emptied every four weeks (dipping); each dipping yielding on the average from 40 to 50 barrels, of 280 pounds each, crude turpentine. At the end of the season, late in October or November, when the resin ceases to run, the boxes are cleaned from the adhering solidified resin (scraping). For each one of the first two years 70 and 80 barrels respectively of such scrape are obtained, containing but little over half the quantity of the spirits of turpentine yielded by the dip, which amounts to 7 gallons for each barrel. The solid part of the turpentine remaining in the still is the rosin of commerce. The dippings of the first two months, the virgin dip, yield this article in highest quality, perfectly clear and almost colorless. The rosin resulting from subsequent dips during the first season is of a straw to a pale amber tint, ranking as good quality: and of the second season, of a light brown color, ranking as medium. The product of the crop during the first two years amounts in the aggregate to about 42,000 gallons of spirits of turpentine, and 460 barrels of rosin of first to medium quality. In the third and fourth seasons the amount of spirits of turpentine is reduced to 1,000 and 900 gallons respectively, and the rosin is of a deeper brown, that of the last year being almost black and of no commercial value. After the fourth year the yield is no longer valuable, and the orchard is therefore abandoned.

The working force of such a plant is generally on 20 such crops, requiring an area of not less than 4,000 acres of pine forest. During the four years of its operation the products amount in the aggregate to about 120,000 gallons of spirits of turpentine, and 12,780 barrels of rosin of various grades, from which, at the rates of the market prices ruling at present, about $70,000 would be realized. The still in use at such a plant is of a capacity to receive 20 barrels of turpentine at a charge. After having been slightly heated, a constant stream of water from the top of the cooling tank enters the still to the end of the distillation. This process completed, the contents of the still are discharged through a pipe in its bottom, and the liquid resin is strained first through a wire cloth, and then through coarse cotton cloth, before it is transferred to the barrels for shipment.

Repeated attempts to extract the volatile oil from the wood directly have shown that, subjected to distillation by steam at high pressure, it will yield about 3 per cent spirits of turpentine. From 600 pounds of air-dry wood, subjected to the treatment of steam and subsequent destructive distillation, in the apparatus patented by Wm. Messau, 21 pounds spirits of turpentine, 95 pounds pyroligneous acid, 150 pounds tar and oily products, and 127 pounds charcoal have been obtained. In view of such facts, already arrived at ten years ago, it is surprising that this mode of the production of spirits of turpentine has made but little progress, particularly if the immense amount of material serving for this purpose is considered, which, as useless, is left to rot in the woods and is burned up to be gotten rid of at the sites of the sawmills.

A highly profitable disposal of this refuse has of late been found in the manufacture of dead oil. Under this name the oily product resulting from the destructive distillation of the wood of the long-leaved pine has, during the past few years, entered the market as a powerful antiseptic, used with decided success in the creosoting of timber. Combined with the by-products obtained in the manufacture of this article, another source of wealth has been added to those already derived from the long-leaved pine. The manufacture of pine wool from its leaves is highly promising. It has already passed the experimental stage, and is successfully carried on by a factory in North Carolina in the manufacture of rugs, baling stuff, and similar close fabrics from this material.

Among the fruits cultivated on the uplands the Scuppernong grape is to be mentioned. The Scuppernong vine is a sport of the Muscadine or Bullac grapevine (*Vitis rotundifolia*), originated in North Carolina, and can only be propagated by layers. The berries, ripening by the end of August, are collected in bunches of about a half dozen; they are of the size of a small plum, and, when fully mature, of a pale amber color. The large amount of acid present in this grape is mostly confined to the cells of the thick hull. The must contains 13 per cent of sugar. By the separation of the must from the pomace immediately after the berries have been crushed, and by the addition of from one-half to three-fourths of a pound of crushed sugar, an excellent dry wine, of the strength and acidity of a generous Moselle or Rhine wine, can be made.

Descending from the sunny pine hills to the lowlands, the marshes of the coast region are entered upon. They are covered in great part with the forests of the bald cypress (*Taxodium distichum*), which extend also over the submerged depressions throughout the upper part of the delta. The cypress is esteemed for its highly valuable timber. In its dimensions this tree exceeds any other of the Atlantic forests; its mighty shaft rises to a height of 80 to 100 feet above its inflated base, by a diameter of from 4 to 6 feet and over. The sight of these monarchs of the tree world in the gloomy recesses of the primeval forest is almost overwhelming. Surrounded by the peculiar excrescences rising from their roots in the form of bald, sharp cones 2 and 3 feet high above the dark ooze of the swamp, these representatives of one of the most ancient of the gymnospermous types of the arboreal flora of our globe present in their assemblage strangely peculiar features. In these forest-covered swamps the *Tellandsia usneoides*, or moss, is found in great abundance, and the ginning of moss forms one of the industries of New Orleans. After having been gathered the plant is buried in the swamp for ten to twelve months to effect the rotting of its softer tissue. Dried and roughly cleaned, it is shipped to the city, where it undergoes a further cleaning, leaving only the elastic fibre, before it is baled for the market. This moss is largely used in upholstering.

The alluvial lands above the marshes, susceptible of drainage, are of the greatest fertility. Cleared, and protected from overflow by a system of levees lining the Mississippi and its large outlets to the Gulf, they are almost exclusively devoted to the cultivation of the sugar cane. Under the stress of low prices, caused chiefly by the enormous increase in the production of European beet sugar, great efforts have been made of late years in this State in the improvement of the cultivation of the sugar cane, but particularly of the processes in the manufacture of sugar, with achievement of splendid results, leading to continued investments in the cultivation of this crop. The rules of thumb and guess have given way to the use of the analytical balance and the polariscope, guided by scientific principles. The investigations of the chemist, instituted by the aid of the United States Department of Agriculture, and at the sugar experiment station of the State, are eagerly taken advantage of by the planter, assisted by mechanical ingenuity and the free expenditure of capital. The extraction of the juice from the cane has been greatly perfected. The amount of saccharine matter left in the bagasse at the mill or in the chip of the diffusion process has been reduced to a minimum; in the first instance by the comminution of the cane by cutting previous to its passing through the rollers. The process of diffusion is steadily gaining favor, and is being more widely employed, as by it the dangers of accidents and consequent delays incident to the employment of heavy machinery under the strain of great power, are avoided. Improved methods in the clarification of the juice, and its evaporization effected at low degrees of temperature in the multiple-effect evaporators and the vacuum pan, with the introduction of filter presses, have effected an astonishing increase in the yield of commercial sugar, amounting in some of the best equipped sugar houses to over 100 per cent of sugar to the ton of cane (Mill Work at Calumet, Wilkinson's Report, 1889-90). The saving effected in manual labor and in the consumption of fuel has kept correspondingly apace with the improvements in other directions. According to the statements kindly furnished by Mr. Murphy, acting president of the Louisiana Sugar and Rice Exchange, in 1889-90, 122,000 acres of cane were ground. Planters with modern apparatus gained 2,753 pounds of sugar; those with apparatus of the old style, 1,847 pounds. The year before 133,000 acres were ground, 2,742 pounds and 2,113 pounds of sugar per acre. In 1890-91 the yield of sugar to the acre has been at least 50 per cent better, owing to an exceptionally favorable season. The crops for the past six years, in hogsheads, were as follows:

1890	420,000	1887	255,185
1889	235,448	1886	148,968
1888	267,851	1885	231,290

The cultivation of the citrus fruits for profit is in Louisiana confined to the sweet orange (*Citrus Aurantium*), and is restricted to the lowest parishes of the delta and of the Gulf coast east of Vermillion Bay. In the parish of Plaquemine, the chief site of the orange orchards, groves from 10 to 200 acres in extent are found, yielding large incomes. The quality of the Louisiana or Creole orange is of the highest order, finding a market at the highest prices. The crop produced in the State is scarcely sufficient to supply the demands of the home market. The lemon (*Citrus Limonum*) is raised only in a few sheltered localities on the coast.

The fig produces abundant crops throughout the lower half of the Gulf States. On account of its perishable nature in the damp climate of this region, it is of no value commercially.

Finally, the ramie plant, or China grass, deserves a short notice. Three species of the urticaceous genus Bohmeria (*B. nivea*, *B. tenacissima*, and *B. caudicans*), perennials and natives of the warmer temperate parts of Eastern Asia, have been introduced for their fibre. Louisiana was the first and foremost of the Southern States in the attempts at the cultivation of the ramie, its decortication, and the further preparation of its fibre, a short time after its introduction into Mexico (1862). The high hopes entertained on the addition of a new crop to the old staples, the cultivation of which would require far less of the manual labor and attention demanded by the latter, have not yet been realized. Growing with greatest facility, most easily propagated in all parts of the subtropical zone, easy of cultivation, and yielding large crops, an insurmountable obstacle in the way of its general introduction was presented in the want of a machine to perform the decortication of the fibre at a cost low enough to compete with the cheap manual labor of the Orient. During the time of the New Orleans Exposition in 1884, the ramie question met with an active revival. Several large companies have been incorporated under the patents of the inventors of improved machines. From the facts before us, it is to be expected that the problems connected with this side of the ramie question are approaching a successful solution. The preparation of the raw fibre to meet the highest requirements of the inventor has already been arrived at.

All that has been said of the ramie applies to another fibre plant, the jute, *Corchorus capsularis* and *C. olitorius*, annuals, also of Asiatic origin. These plants, throughout the subtropical zone, arrive at maturity in fullest perfection, under the easiest cultivation. Many thousands of hundredweights of their crude fibre are imported to this country, required for cotton bagging. With the invention of an improved machine to perfect its decortication, another crop, of great importance to the cotton interest, will be added to the agricultural resources of this section.

Although of prime importance, the subject of cotton (*Gossypium*) is left out of this sketch as being already familiar to every one present.

MOBILE, ALA., April 10th, 1891.

Notes on the Orange and Lemon, and their Cultivation in the Southern States.

BY R. N. GIRLING, NEW ORLEANS.

No one who has enjoyed the privilege, if it may be so termed, of eating a fully ripe Louisiana or Florida orange, can have failed to remark the immense superiority of its flavor over the orange imported from the shores of the Mediterranean and other parts of Southern Europe; and to connoisseurs the foreign fruit is but a poor substitute for the products of our Southern orchards.

It is a noticeable fact that the supply of the native fruit is never equal to the demand, not even for home consumption; and it requires but little stretch of the imagination to perceive that, were the product larger than necessary for said home consumption, the better flavor and larger size of the fruit of the Southern States would force it to command prices relatively so much higher than the imported as to insure to the grower a very remunerative return.

Unfortunately, comparatively little attention has been paid to orange culture of late years, although those who are fortunate enough to possess orange groves can always dispose of their crop as soon as the orange begins to form—months before the fruit is ready for harvesting—without having the trouble either to gather or ship it to market. The buyer undertakes to attend to this, and also assumes the risk of losing the fruit either by storms or other accidents.

Notwithstanding all this, there has been no appreciable increase in the acreage of orange treesplanted in this section, although the care and cultivation of the orange require, relatively, less trouble than any other species of fruit tree.

The sweet or Louisiana orange can be grown from seed, or propagated by grafting or budding on sour or bitter orange stocks. When grown from seed, the trees generally attain the age of seven years before they begin to bear; although the removal of the tap-root, and transplanting during the second or third year, hasten their productiveness and render their growth more vigorous.

There is, however, an element of uncertainty in growing from the seed, as it often happens that the orange produced is far inferior to that from which the seed was obtained, and consequently the grower may be very much disappointed in the results after patiently waiting for so many years.

For this reason it is preferable to graft, or, better still, to bud some well-authenticated variety on to the sour stocks, as by this means the trees are brought to bear in a much shorter time, and appear to withstand frost and the attacks of insects far better than those raised from the seed. Moreover, the fruit is always similar to that produced by the tree from which the grafts or buds were obtained. It is true that this method of propagation requires a little extra care in rubbing off the buds which grow from the parent stock as soon as they appear, otherwise they would very soon overtop and outgrow those which had been engrafted.

The orange prefers a rich alluvial soil, such as is commonly found in the lowlands of Louisiana or in the hammock lands of Florida. In such it will thrive anywhere where the visitations of frost are not too severe, and generally this condition is found no further north than the thirty-first degree of latitude. Further north than this extra precautions are necessary to protect the plants during the winter season.

The trees, when placed in the positions they are to occupy permanently in the orchard (or, as it is termed, the "grove"), should be about 30 feet apart, and should be pruned so as to cause them to grow straight up from the ground, and the trunk kept entirely free from suckers.

The lowest lateral branches should not be less than 5 feet above the roots, in order to allow free circulation of air underneath the trees. The failure, in some instances, of fruit becoming fully matured is no doubt due to the practice of planting the trees too near to each other, and to this habit is probably due the rusty appearance of many specimens of fruit.

The principal enemies of the orange are mildew and the scale insect. An occasional dressing of lime wash mixed with sulphur is said to prove an excellent preventive. Another, which it is claimed is even more effectual, is composed of

Lime	2 pounds.
Sulphate of Copper	2 pounds.
Water	10 gallons.

To be applied to the trunks of the trees and to the under surface of the leaves. The application should be made before the trees begin to bloom and before the fruit has matured.

According to some writers, the home of the orange is in the northern part of the East Indies. Be this as it may, it is certain that the orange is found in the wild state in many parts of Florida, and as there is, as far as the writer can learn, no authentic information as to how the tree became naturalized in that country, it may, with considerable show of reason, be presumed that the orange is also a native of the Western hemisphere.

The sour orange, which is cultivated as an ornament to the gardens of many of our Southern homes, possesses an intrinsic value which, so far, has never been appreciated, at least in this section. The flowers abound in essential oil of remarkable fragrance, and might be profitably employed in the manufacture of orange-flower water and oil of neroli.

A specimen of both these products, which was shown to the writer some time ago, served to show that they could be manufactured in this country of a very superior quality to those imported from Europe. It only requires enterprise on the part of some of our citizens to enable us to compete successfully with foreign articles of a similar kind, and to foster the cultivation of the bitter or sour orange as a most lucrative branch of arboriculture.

The peel of the bitter orange is richer in essential oil than the sweet variety, and the oil obtained from oranges grown in this section possesses a far finer aroma than that imported from Southern France and Italy.

The trees are hardy, less liable to attacks of insects and mildew than the sweet variety. It is no uncommon sight to see the trees, when in full bearing, covered with flowers which render the air redolent with their delicious aroma, the same branches which bear these flowers being laden with handsome ripe fruit.

Other varieties of the orange may be grown in a similar manner, the next in importance to the so-called Louisiana being the mandarin. This is a small fruit, possessing a peculiarly rich aroma, quite distinct from the ordinary orange, and is much sought after. The tree is of the dwarf species, and thrives in a smaller space than required for the other.

The lemon also thrives well in this section, attaining a much larger size than the Sicilian variety. It might be profitably cultivated for the manufacture of citric acid and the essential oil, since the trees require little if any care, and after a few years yield abundantly.

A Scheme to Establish a Comparative Standard for Alkaloidal Galenicals.[*]

BY J. U. LLOYD.

THIS subject is introduced in accordance with the desire of the Cincinnati Chemical Society, before which, at the request of the president, Prof. T. H. Norton, who was acquainted with my laboratory methods of assay, the subject was presented experimentally at the February meeting.[†] Acknowledging the necessity at this time for contributions to the subject of assay determinations, I cheerfully comply, and hope that the scheme introduced herewith may (either as I use it or as it may be modified) assist those who seek speedy and simple methods for approximate standardization of galenical preparations. The paper is contributed directly to this Society by suggestion and request of some of the members of the Chicago College of Pharmacy, before whom it was my pleasure recently to perform a few experiments of a kindred nature.

When the assay experiments aforenamed were introduced, I stated that neither the use of small amounts of bicarbonate of sodium as an antacid or neutralizer, nor the washing methods of the subsequent steps, were claimed by me as new, but that in other respects the general process was such a marked innovation on all others known to me as to probably make it an original one.

In considering assay methods, corrections must, I believe, be made for varying conditions seemingly of apparent unimportance, as, for example (a point that many perhaps overlook), the time consumed in some portions of the process. If, for example, ipecac, aconite, lobelia, belladonna, and other drugs possessed of delicate alkaloids, are permitted to linger during certain stages of the manipulation, especially in water, acid, and alkali contact, the operation, in my opinion, is in itself more or less disastrous to accuracy, and the result may be questionable. If heat is applied to some of the organic bases while in process, especially in the presence of mixtures of water and acid, or alkali, the alkaloids may be more or less split or disintegrated, and may materially vanish. Hence, to arrive at fair comparative assay determinations, the operator must in many cases avoid possible destructive features that may be either thoughtlessly overlooked or considered unimportant, and he should, in my opinion, complete his work within the shortest possible period. Indeed, I make it a rule to so arrange that neither delay nor interruption occurs in assay determinations of certain drugs while their alkaloids are in water contact, whether (as in the process herein introduced) it be while in the mortar or the acid solution. No perceptible loss follows during chloroform contact (in my experience), but my entire process, from beginning to end, consumes but a few moments.[‡]

In my method the possibilities of loss from the first step of the usual processes for assaying fluid extracts are avoided (evaporation of the alcohol after making them alkaline or acid), for I dispense with that step entirely.

I will briefly state that the advantages of my method over those in general use result, in my opinion, chiefly from

1. The dispensing with an evaporation of the fluid extract in the presence of alkalies and acids, avoiding thereby the consequent destruction of delicate alkaloids (the first step of other methods).

2. There is no loss of alkaloid from precipitation with resins during such evaporation, a loss that may result in such cases from their mechanical envelopment by the precipitated resin which is often thrown down in large amount, and in which the alkaloid is often so firmly embedded or associated as to resist the action of solvents.

3. The displacement of the alkaloid from natural combination, largely accomplished by the action of the cold acid of the ferric chloride.

4. The simultaneous fixing of tannates and vegetable astringents in an insoluble condition by the ferric chloride (and the ferric hydroxide produced when the sodium bicarbonate is added), thus keeping them out of the alkaloidal solvent; and the freeing of much of the alkaloid from natural combination, in a condition to be easily dissolved by chloroform.

5. The final liberation of the total alkaloid in a nascent, or at least very soluble, condition by action of the great excess of sodium bicarbonate, which, from its weak alkaline nature, will not immediately affect it disastrously, while the protective action of the carbonic acid gas generated at the time possibly assists in preventing its decomposition.[§]

6. The distribution of the alkaloid throughout a substance for which it has no affinity, but rather a repulsive action, which enables appropriate solvents to abstract it rapidly and completely, as may be shown by drying the soda magma in the mortar after extracting nux vomica or cinchona, and applying thereto the delicate sense of taste test; and as may also be shown by comparative experiments and final weighings in which different amounts of extracts are worked, or known amounts of alkaloids are added to similar proportions of the fluid extract that is to be assayed.

7. The avoidance of exasperating or provoking delays in the subsequent manipulation by reason of the formation of emulsions that often (or usually) refuse to allow the liquids to separate; for by my method the chloroform that washes the alkaloid from the soda magma in the first step is practically colorless and nearly destitute of foreign bodies, especially of the substances that usually accompany the alkaloid and subsequently form emulsions.

The operator may, by using this magma process, begin and finish the assay with despatch and without an interruption. Only a few moments are required to assay any fluid extract named in the following paper, and those cited are simply individualized examples of what is possible, with slight deviation of method, with others, and with other classes of galenicals.

Some factors are present in my process that will strike other persons as questionable innovations—they did myself, although I had less reason to fear the application of the method in assay amounts than most other persons will have. I have been forced in my work to meet some peculiar problems, problems that have confronted me for many years, in connection with eclectic drugs, usually unimportant with others; and few pharmacists have probably, until recently, felt the urgent necessity for methods of assay that did not apply to such well-known officinal alkaloid-yielding drugs as opium and cinchona. To some of the self-recurring questions concerning my process, questions that surely will arise, I briefly refer as follows:

It will appear as though the solvent (chloroform in examples cited herein) cannot, by its brief contact, abstract the alkaloid from the bulky soda magma. This point has been settled (favorably as compared with other processes of assay) to my satisfaction for many years. It will perhaps also appear that the chloroform must dissolve appreciable amounts of sodium or iron compounds from that magma by reason of their great abundance and contact with it—a point that may be readily established (negatively, as I have worked) by conducting the process with fluid extracts of non-alkaloid drugs and noting the result. It is my experience that the minute amounts of such contaminating bodies (excepting oils, fats, and some resins which are afterward practically separated) are usually unimportant, even in the first chloroform. These contaminations do not, in my opinion, amount to the uncertainties of the first step of other methods that I have employed; for defects of manipulation that may result in destruction of more or less of the alkaloid can never be overcome, while in my process the traces of foreign bodies abstracted by the first chloroform are left in the acid water.

Some may prefer titration with Mayer's solution to final weighing of the alkaloid. In my experience, the corrections necessary after titrating with Mayer's solution—owing to discordant results from disturbing conditions, such even as the degree of dilution of the menstruum; uncertainty concerning exact point of the end reaction; solvent action an excess of the reagent exerts upon the alkaloid precipitate; the action of heat and influence of time that must be preliminarily employed to free the fluid extract from alcohol and resin in order to apply that test with any degree of accuracy—render that process exceedingly unsatisfactory, whether applied volumetrically or gravimetrically. Part of this trouble is largely overcome, however, if volumetric titration is preferred, by using my process and titrating the alkaloidal acid solution that results from washing the first chloroform. I value Mayer's test as an indicator to establish the presence of alkaloids, but not as a satisfactory agent for quantitative alkaloidal assay.[¶] Predisposition and habit, however, have much to do in framing our preferences, and some who are accustomed to assay by other methods, the details of which have become familiar, may not care to vacate a beaten road.

To those of limited experience proposing to establish commercial or home-made fluid extracts by my process, I suggest, first, assay fluid extract of guarana, then nux vomica and members of that class, after which the methods of manipulation will be familiar, and members of the class embracing hyoscyamus will offer no difficulties. I would particularly urge the inexperienced manipulator to bear in mind that patience and care are as much a necessity in simple methods as in those more complex, and that it is evident that no process can be formulated that will apply to all substances.

Finally, I must say that, in my opinion, assay determinations of this description are not designed to, and cannot, prevent fraud. In addition to such general methods as those that are used to roughly estimate the total alkaloid present, tests must be devised to show that cheaper or foreign alkaloids have not been introduced, if it is proposed to prevent adulteration. It would be an easy matter to sophisticate a poor fluid extract of ipecac and make it show by the usual tests the presence of 2 per cent of a crude alkaloid, and yet it might be destitute of emetine. Distinguishing tests to correct intentional abuses are not yet practical in the majority of cases. I question, however, if any established American manufacturer would be guilty of such an offence, and in assaying commercial fluid extracts I exclude such a supposition. If a commercial pharmaceutical specimen is inferior, in my opinion it is because of carelessness in manipulation, or the use of either a faulty process or a poor drug, or from deterioration. Manufacturers cannot risk their reputations by inviting disasters that would surely follow systematic adulteration, and I believe that they appreciate attempts to help establish uniform products. Probably this paper will be received in that spirit as a contribution to current literature, for I believe that all are anxious to avoid some of the confronting perplexities and uncertainties and find easy methods to overcome tedious processes.

We should recognize, however, that an element of suspicion adheres to all methods of assay whereby standardization is attempted by estimation of the proportion of crude or natural alkaloids. These approximate assay methods are makeshifts. Possibly their evolution will lead to the discarding of natural conglomerates such as fluid extracts. Possibly standards of value closer than proportions of mixed crystallizable and amorphous natural alkaloids will be evolved. Where two or more mixed alkaloids of varying physiological values prevail in a drug, it seems to me that only a part of the object is attained when we assay to "total alkaloid."

Where amorphous and crystallizable alkaloids abound under one name and different activities, it seems to me that we should discriminate and individualize. Where it has not been established that alkaloidal constituents dominate the entire therapeutical energy of a drug, it seems to me that alkaloidal standardization should be valued as a part and not the whole. Where it has been shown that the full force of a drug can be obtained from one permanent alkaloid (if that has been shown), it seems a relic of empiricism to use either the drug in substance or any preparation thereof.

SCHEME TO ASSAY FLUID EXTRACT OF GUARANA.

[Fluid Extract of Guarana should assay from 3.00 per cent to 4.00 per cent Caffeine.‖]

In a flat-bottomed porcelain mortar with a good lip mix 5 C.c. of the fluid extract with 2 C.c. solution perchloride of iron. Add sodium bicarbonate to it, with constant trituration, until a stiff magma results. Abstract the magma by repeated triturations with chloroform, using first 20 C.c. and then three portions of 10 C.c. each, decanting them severally. (This excludes tannates, gums, albuminates, mineral salts, most vegetable acids and salts, and most coloring matters. The chloroform extracts the caffeine and an insignificant amount of coloring matter.) *Throw the contents of the mortar away.* Mix the chloroform solutions and divide into two parts. Reserve one portion for possible mishaps. Evaporate the other part in a tared dish. Weigh the residue, express in grammes, and multiply the amount by 40, which will give the percentage of caffeine. The caffeine will be but little colored and will be crystalline. It should dissolve completely in chloroform.

Remarks.—If very pure caffeine is desired, dissolve the dry residue in chloroform, filter the solution, and wash the filter paper well with chloroform, then evaporate it. This operation must be repeated if the caffeine is still colored. The testimony offered by the caffeine in the first chloroform solution is a better criterion of the caffeine value of the fluid extract than that of subsequent determinations, for the traces of impurity present therein are more than balanced by the caffeine wasted by the subsequent manipulations.

SCHEME TO ASSAY FLUID EXTRACT OF IPECAC, BELLADONNA ROOT, ACONITE, AND NUX VOMICA.**

	Per cent.	
Fluid Extract of Ipecac should assay	1.50	natural alkaloid.
" " " Belladonna root should assay	0.50	" "
" " " Nux Vomica should assay	1.50	" "
" " " Aconite should assay	0.40	" "

In a flat-bottomed porcelain mortar with a good lip mix 5 C.c. of the fluid extract with 1 C.c. solution perchloride of iron. Add sodium bicarbonate to it, with constant trituration, until a stiff magma results. Abstract the magma by repeated triturations with chloroform, using first 20 C.c. and then three portions of 10 C.c. each, decanting them severally. (This excludes tannates, gums, albuminates, mineral salts, most vegetable acids and salts, and most coloring matters. The chloroform extracts the alkaloids, mixed with some wax, resin, and the fats.) *Throw the contents of the mortar away.* Mix the chloroform solutions and divide into two parts. Reserve one portion for possible mishaps. Extract the other part by rotating it in a bulbed separator with diluted sulphuric acid (1 part in 50), using successively three portions of 10 C.c. each. (This acid water abstracts the alkaloids, leaving the fats, resins, and wax in the chloroform.) *Throw the chloroform away.*†† Make the mixed acid solutions alkaline with ammonia water, quickly rotate in a bulbed separator with three portions of 10 C.c. each of chloroform, abstracting the chloroform solutions severally. (This abstracts the natural alkaloid, forming a chloroform solution that is practically free from impurities.) *Throw the water solution away.* Mix the chloroform liquids and evaporate in a tared dish. Weigh the residue, express the amount in grammes, and multiply by 40, which will give the (practical) crude alkaloidal per cent of the fluid extract. (This alkaloidal residue should dissolve completely in diluted sulphuric acid.)

SCHEME TO ASSAY FLUID EXTRACTS OF HYOSCYAMUS, BELLADONNA LEAVES, AND COCA.‡‡

Fluid Extract of Hyoscyamus should assay 0.20 per cent natural alkaloid.§§

Fluid Extract of Belladonna Leaves should assay 0.40 per cent natural alkaloid.

Fluid Extract of Coca should assay 0.50 per cent natural alkaloid.

In a flat-bottomed porcelain mortar with a good lip mix 5 C.c. of the fluid extract with 1 C.c. solution perchloride of iron. Add sodium bicarbonate, with constant trituration, until a stiff magma results. Abstract the magma by repeated triturations with chloroform, using first 20 C.c. and then three portions of 10 C.c. each, decanting them severally. (This excludes tannates, gums, albuminates, mineral salts, most vegetable acids and salts, alcohol, and most coloring matters. The chloroform extracts the alkaloids mixed with wax, some resins and chlorophyll, and the fats.) *Throw the contents of the mortar away.* Mix the chloroform solutions and divide into two parts. Reserve one portion for possible mishaps. Extract the other part by rotating it in a bulbed separator with diluted sulphuric acid (1 in 50), using successively three portions of 10 C.c. each. (This acid water abstracts the alkaloids and some chlorophyll, leaving the fats, resins, and wax in the chloroform liquid.) *Throw the chloroform away.*¶¶ Extract the mixed acid solutions by rotating in a bulbed separator with two portions of 10 C.c. each of stronger ether, severally abstracting the acid solutions from beneath. (This washing with ether separates the adhering chlorophyll.) *Throw the ether away.* Make the mixed acid solutions alkaline with ammonia water, quickly rotate in a bulbed separator with three portions of 10 C.c. each of chloroform, abstracting the chloroform portions severally. (This abstracts the alkaloid, forming a chloroform solution that is practically free from impurities.) *Throw the water solution away.* Mix the chloroform liquids and evaporate them in a tared dish. Weigh the residue, express the amount in grammes, and multiply by 40, which will give the (practical) alkaloidal percentage of the fluid extract. (This alkaloidal residue should dissolve in diluted sulphuric acid.)

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[*] I recognize the fact that objections may be offered to all methods of assay. This is not proposed as a perfect process, but as one that is worthy of consideration and within reach of most apothecaries.

[†] The Society then requested me to send the detail process to the Revision Committee of the United States Pharmacopœia.

[‡] Some stable organic bases, such as strychnine, caffeine, and quinine, do not perceptibly disintegrate or split. Others, like the alkaloids of hyoscyamus, belladonna, aconite, and ipecac, should be handled cautiously while in manipulation.

[§] While I acknowledge the fact that caustic alkalies are usually employed by assayists to precipitate alkaloids, I need only say that where great economy is necessary, as in competition in business, such disastrous processes are to be avoided, excepting with bases of the most permanent character. Such influences are often unnoticed in working small amounts, but in large batches they cannot be ignored. It is evident that the rule should apply alike to small determinations.

[¶] I need only refer to corrections authorized in Lyon's "Assay" and to remarks on pp. 22 to 27 of that excellent work, and to the papers of H. W. Snow, to show that I am not alone in this view.

[‖] The alkaloidal percentages suggested in this paper are designed to come within the yield that is feasible with good qualities of commercial drugs. In my opinion, the standard should not be established above the average shop product, and there should be an allowance for variation in manipulation and material.

[**] The method, with slight variations, may be applied to the quick assay for other alkaloidal galenicals, detailed reports on which will perhaps yet be given by the author.

[††] If the operator prefer the titration method with Mayer's solution, this acid solution is ready, after evaporation of the chloroform, for volumetric assay. I prefer to dry and weigh the natural alkaloid.

[‡‡] This process, with slight modifications, may be applied to the assaying of galenical preparations of other alkaloidal herbs.

[§§] The term "alkaloid" is used with reference to the mixed associated crude (amorphous and crystalline) alkaloids, regardless of their several therapeutical values. There is no question but that the establishing of crude alkaloidal standards is open to objections.

[¶¶] If the operator prefer the titration method with Mayer's solution, this acid solution is ready, after evaporation of the chloroform, for volumetric assay. I prefer to purify and weigh the natural alkaloid.

A Simpler, More Reliable Test for the Lithium Salts than that of the United States Pharmacopœia.

BY WILBUR L. SCOVILLE.

HAVING had occasion to test the salts of lithium frequently, and finding the Pharmacopœial test for the alkali metals unsatisfactory, it occurred to the writer that advantage might be taken of the small atomic weight of the metal by estimating its saturating power.

The atomic weight of lithium being only 7, sodium (atomic weight 23) would have less than one-third the saturating power, and potassium (atomic weight 39.1) less than one-fifth. Thus, 1 Gm. of lithium carbonate will require 27 C.c. of normal acid to neutralize it, while 1 Gm. of dried carbonate of sodium, U. S. Pharmacopœia (containing 72.6 per cent of anhydrous carbonate), will require 18.7 C.c. of normal acid, and 1 Gm. of potassium carbonate, U. S. Pharmacopœia, will require only 11.74 C.c. of normal acid.

By taking advantage, then, of the fact that organic acid radicals, when ignited, change to carbonate, a ready means is thereby afforded of demonstrating the purity of organic salts of lithium by titration.

The method usually followed is as follows: 2 Gm. of the salt—as lithium citrate, for instance—are placed in a porcelain capsule having the capacity of 40 to 50 C.c., and slowly ignited until completely charred, when the full flame of a Bunsen burner is allowed to play upon the bottom of the capsule until most of the organic matter has been burned off. When the capsule has cooled, normal nitric (or hydrochloric) acid is drawn in from a burette, slowly at first to avoid loss by effervescence, until an excess has been added. After standing until the salt has completely dissolved, methyl-orange indicator is added and the excess of acid ascertained with normal soda solution.

Treated in this way, 2 Gm. of lithium citrate should require not less than 28.55 C.c. of normal acid; 2 Gm. of lithium benzoate not less than 15.6 C.c.; and 2 Gm. of lithium salicylate not less than 26.12 C.c.

Care must be taken to start with a perfectly dry salt. The citrate especially is hygroscopic, and is often found to contain as much as 15 per cent of moisture, which must be driven out before the salt is weighed for igniting.

A porcelain capsule is preferred for the ignition, because it obviates transferring the salt or acid solution to a flask, and affords plenty of room for the swelling of the salt in the first stages of ignition, besides giving a good background for the color reaction in the titration.

This method has given uniformly good results when carefully conducted, and requires little time and manipulation.

Caffeine Salts—their Preparation and Composition.

BY H. W. SNOW, PH.C.

THE question of the existence or non-existence of salts of caffeine has been studied before this time. It was once held that the alkaloid did not form true salts, and that this was especially true of the weaker organic vegetable acids. This opinion seems to be still held by many American pharmacists, who do not seem to be familiar with the most recent affirmative studies made in this line, and it was with a view of bringing the results of some experiments of my own, as well as the experiments of others, before American pharmacists, that this paper was prepared. Before I was myself fully aware of the published works of others, I was convinced of the existence of at least some salts of caffeine by having examined some commercial brands, more especially the hydrobromide. The requirements of my own work led me to experiment on the manufacture of the hydrobromide for myself, which experiments were successful, and this success led to further work. Afterwards a consultation of chemical literature revealed the fact that other contributions had been made to the subject before I began my studies; therefore I shall pass in review the chief experiments which have been performed before my own. Hager long ago affirmed that there was no such a combination as citrate of caffeine, but that the powder usually sold as such was nothing but a mechanical mixture of citric acid and caffeine, and H. J. Haarman [*] supported this assertion, also claiming that the valerianate had no existence.

In 1881 J. U. Lloyd,[†] at the request of Charles Rice, performed some experiments on the citrate, as a result of which he announced that it has an existence, though it is readily decomposed. All experiments to make the acid and alkaloid combine in aqueous and alcoholic solutions resulted in failure, and he therefore concluded that caffeine will not combine with citric acid in the presence of any solvent that dissolves the acid freely and caffeine sparingly, and consequently to make caffeine and citric acid combine it is necessary to use a fluid having about equal solvent power over both. The solvent chosen was chloroform 2 volumes, and alcohol (specific gravity 0.835) 1 volume, which was to be applied as follows:[‡] Caffeine (30 grains) was dissolved in 1 fluidounce of chloroform, and citric acid (30 grains) in ½ fluidounce of alcohol; mix and filter, and evaporate the filtrate to a syrupy consistence over the water bath. Remove the dish and cool to 50° F., and stir with a spatula until a dry powder results. Commenting on this product, Lloyd says it "is mostly citrate of caffeine, though both the free acid and free alkaloid undoubtedly exist in it to some extent." It is permanent in the air, but is instantly decomposed by contact with water, the caffeine separating in feathery crystals if the water present is insufficient in quantity to dissolve it. Alcohol also dissolves it. It is practically insoluble in chloroform. He further concludes that if the proportion of acid be increased, it is still doubtful whether the whole of the caffeine may be made to enter into combination.

About the same time Schmid,[§] in connection with his work on the constitution of caffeine, was led to examine the salts of the alkaloid. The abstract I have says he found that the citrate and formate could not be formed, but mentions the acetate as forming colorless needles which yield up their acid very readily on exposure to the air, even at ordinary temperatures. The normal butyrate and the isovalerate were also mentioned as having been obtained in distinct crystalline form. C. Tanret,[¶] in studying Schmidt's work, endeavors to show that caffeine does not form salts with organic acids. He mentions acetic, valeric, lactic, and citric acids, saying they cannot be made to combine with caffeine. He says that hydrochloric, hydrobromic, and sulphuric acids form salts, the latter crystallizing with difficulty, but the hydrochloride and hydrobromide crystallizing with ease. Having his results thus questioned, Schmidt requested

H. Biedermann to reinvestigate the whole subject, which he accordingly did in a very thorough manner,‖ reporting the analyses of a number of definite salts, including the formate, acetate, butyrate, and valerianate, as well as the hydrochloride, hydrobromide, nitrate, and some others. He gives the following:

Aurochloride, $C_8H_{10}N_4O_2HCl\ AuCl_3.2H_2O$.
Platinochloride, $(C_8H_{10}N_4O_2)_2H_2Pt_2Cl_6$.
Hydrochloride, $C_8H_{10}N_4O_2HCl.2H_2O$.
Hydrobromide, $C_8H_{10}N_4O_2HBr.2H_2O$.
Nitrate, $C_8H_{10}N_4O_2HNO_3.H_2O$.
Sulphate (acid), $C_8H_{10}N_4O_2.H_2SO_4$.
Sulphate (normal), $(C_8H_{10}N_4O_2)_2H_2SO_4.H_2O$.
Formate, $C_8H_{10}N_4O_2.H_2CO_2$.
Acetate, $C_8H_{10}N_4O_2.HC_2H_3O_2$.
Butyrate, $C_8H_{10}N_4O_2.HC_4H_7O_2$.
Valerate, $C_8H_{10}N_4O_2.HC_5H_9O_2$.

He also obtained anhydrous hydrochlorides by the action of hydrochloric acid gas on the alkaloid. These had the composition $C_8H_{10}N_4O_2.HCl$ and $C_8H_{10}N_4O_2.4HCl$. He also adds that all of these salts are decomposed wholly or partially at a temperature of 100° C.

The oxalate has been mentioned by Dr. Leipen** as a very stable compound and as not being decomposed by water, even on repeated crystallization. In the short abstract consulted by me, no quotation is made of the results of analyses of the oxalate, and we are only led to infer that such were made. A "phenate" has been mentioned as having been produced by Petit†† by mixing solutions of equal parts of caffeine and phenol. It is said to be a definite crystalline compound, very soluble in water. This, with the exception of the double salts of caffeine with sodium and benzoic, salicylic and cinnamic acids, comprises the literature with which I am familiar on the subject of the salts of caffeine. Regarding these double salts, it may be said that they were first announced by Tanret,‡‡ and further particulars on them may be found by consulting the papers by Merck§§ and Schwarz.¶¶

EXPERIMENTS.

These were confined to a study of the hydrobromide, hydrochloride, sulphate, nitrate, salicylate, benzoate, oxalate, citrate, and valerianate. Of these, all but the last two were prepared by crystallization from water. The valerianate was prepared by crystallization from chloroform, as was also a sample of the salicylate. The experiments grew out of a necessity for the preparation of the hydrobromide, and were first begun some three or four years ago. When molecular equivalents of the alkaloid and an inorganic acid are mixed together in the presence of excess of water, it is very evident that no change takes place. If the water is insufficient to dissolve the alkaloid, this latter remains suspended through the liquid without any change of appearance or alteration of any kind. However, if the mixture is set aside for spontaneous evaporation, a time is reached when the acid becomes sufficiently concentrated to lead to the formation of a true salt, which crystallizes out. These crystals of true salt are interspersed with the crystals of unaltered alkaloid. The change is progressive and continuous, alkaloid passing into the solution to replace the salt of the alkaloid which crystallizes out, so that, until the very last of the operation, crystals of uncombined alkaloid can be seen mixed with the growing crop of crystals of the true salt. It is probable that, as the acid is weakened by a portion of it entering into combination with the alkaloid, a time must elapse for further spontaneous concentration; that is to say, that the rapidity of crystallization (when this once begins) is dependent on the rate of evaporation. From the foregoing it would seem to naturally follow that better results will be obtained when more acid is added than is required for entering into combination. Experience demonstrates the truth of this supposition. It also follows from this that if the ratio of water to acid is not too great, the salt of the alkaloid can exist in the presence of water, and can consequently be prepared in the presence of water. It was in this manner that the hydrobromide, hydrochloride, nitrate, and sulphate were prepared. Further, it was noticed that if excess of acid is used and of sufficient degree of concentration, the alkaloid, upon being stirred into it, will at first all dissolve and then almost immediately recrystallize as salt. This was first noted in connection with the hydrochloride, and later with the nitrate and hydrobromide. In order to prepare the salts economically by spontaneous evaporation and without waste of time, it becomes necessary to fix the point of dilution of the acid at which crystals will begin to form within a few hours after the addition of alkaloid. This will depend upon the amount of acid that is to be used; that is, whether just enough is to be used to wholly combine with the alkaloid, or whether an excess is to be employed. Also good results can be obtained by only diluting a part way, and then dissolving the alkaloid with the aid of a little heat and setting aside for spontaneous evaporation. In the case of the oxalate and salicylate, it was noted that they crystallized easily from *dilute* solutions, and that neither of the two salts is easily soluble. They can be prepared readily by dissolving the alkaloid and acid separately in sufficient water, mixing the two solutions, and setting aside to crystallize. The salt crystallizes out and may be freed from the mother liquor by filtration, and then dried, first between blotting paper and then in the air.

While my experiments have not been sufficiently exhaustive to generalize with safety, it would seem justifiable to point out that in both these cases the resulting salts are rather more difficultly soluble than usual; further, that the acids are not easily soluble, the salicylic acid especially. It would seem then that, when these conditions obtain, the caffeine salt will be reasonably stable in the presence of water. In preparing by the chloroform process it is simply necessary to dissolve the acid and the alkaloid separately in chloroform, mix the two solutions, filter, and set aside to crystallize. The salts prepared as above were analyzed, the acid being determined by titration with standard alkali, using phenolphthalein as indicator; the alkaloid being estimated by washing out with chloroform. The water of crystallization was estimated by difference. In the case of the salts of the volatile acids, direct determination of the water of crystallization by drying and weighing is impossible, as the salts are more or less decomposed by the action of heat. Titrations before and after heating showed that the hydrochloride is wholly decomposed at a temperature below 75° C., while at from 75° to 80° the hydrobromide and nitrate suffer partial decomposition; but the sulphate is stable at 100° C., and probably considerably above this temperature, perhaps as high as the subliming point of the alkaloid. No experiments were performed for the others. Results of the analyses were as follows:

Caffeine Hydrochloride.

	1st Det.	2d Det.	Av.
Alkaloid	72.09%	71.95%	72.02%
Acid	13.72	13.84	13.78
Water	14.19	14.21	14.20

With two molecules of water of crystallization, the composition is by calculation:

Alkaloid	72.79%
Acid	13.69
Water	13.52

Caffeine Hydrobromide.

	1st Det.	2d Det.	Av.
Alkaloid	62.39%	62.33%	62.36%
Acid	27.08	27.27	27.18
Water	10.53	10.40	10.46

With two molecules of water of crystallization, the composition is by calculation:

Alkaloid	62.38%
Acid	26.05
Water	11.57

Caffeine Nitrate.

	1st Det.	2d Det.	Av.
Alkaloid	74.7%	74.86%	74.78%
Acid	24.09	23.79	23.94
Water	1.21	1.35	1.28

With five molecules of salt to one molecule of water of crystallization, the composition would be:

Alkaloid	74.45%
Acid	24.17
Water	1.88

This, it will be seen, is a somewhat unusual composition, but it seems the only conclusion to draw. Biedermann gives the salt as having one mo'ecule of water of crystallization.

Caffeine Sulphate.

	Found	Theory requires
Alkaloid	82.1%	79.9%
Acid	17.8	20.1
	99.9	100.0

The salt evidently contains some excess of alkaloid, but it was not thought necessary to make a second trial, as the difficulty seemed to be in not having used quite enough acid, the acid possibly being a little under strength, it having been assumed to be 100 per cent strong. The salt crystallizes without water of crystallization.

Caffeine Salicylate (from Water).

	Found	Theory requires
Acid	41.44%	41.57%
Alkaloid	58.39	58.43
	99.83	100.00

The salt crystallizes without water of crystallization.

Caffeine Salicylate (from Chloroform).

	Found	Theory requires
Acid	41.73%	41.57%
Alkaloid	58.49	58.43
	100.22	100.00

Caffeine Benzoate.

No full analysis was made of this. It is evidently not so easily prepared as the salicylate, the first small crop of crystals obtained containing excess of acid.

Caffeine Oxalate.

	Found	Theory requires
Alkaloid	81.4%	81.2%
Acid	18.8	18.8
	100.2	100.0

The salt crystallizes without water of crystallization.

Caffeine Valerianate.

	Found	Theory requires
Alkaloid	72.2%	65.54%
Acid	27.75	34.46
	99.95	100.00

The salt evidently contains some unaltered alkaloid.

SUMMARY.

From these experiments it appears that in the case of the stronger inorganic acids it is a simple matter to prepare salts with caffeine. In case of the organic acids it is otherwise. Some of them, namely, the salicylate, benzoate, and oxalate, are prepared with the greatest ease, but others are much less easily prepared. In the case of those with the volatile acids, the combinations are very unstable and are easily decomposed. In regard to the existence of a *normal* citrate, I am not yet fully determined in my own mind, but am inclined to believe that it can be prepared by appropriate means. The hydrobromide and hydrochloride crystallize with great ease; the nitrate is somewhat difficult to crystallize, and the sulphate still more so.

The composition of the salts as determined by these experiments is as follows:

Hydrochloride, $C_8H_{10}N_4O_2.HCl.2H_{20}$.
Hydrobromide. $C_8H_{10}N_4O_2HBr.2H_{20}$.
Nitrate, $(C_8H_{10}N_4O_2HNO_3)_2H_{20}$.
Sulphate (normal), $(C_8H_{10}N_4O_2)_2H_2SO_4$.
Oxalate, $(C_8H_{10}N_4O_2)_2H_2C_2O_4$.
Salicylate, $C_8H_{10}N_4O_2.HC_7H_6O_3$.

DETROIT, MICH., March 1st, 1891.

Process for Granular Sulphate of Iron C. P. to Replace that for Precipitated Sulphate of Iron.

BY EDGAR L. PATCH, OF BOSTON.

DISSOLVE 200 Gm. of ferrous sulphate in 200 C.c. of hot water acidulated with 10 C.c. of diluted sulphuric acid, filter, evaporate to 350 Gm., cool quickly, stirring all the while. Allow granular product to drain in a funnel stopped with washed cheese-cloth, and wash with 50 C.c. of alcohol (with great care in drying, the use of alcohol can be avoided).

The mother liquor can be evaporated and a second crop be obtained, or it can be evaporated to get crystallized sulphate.

The following tables show results obtained by different workers using this and the U. S. P. formula for precipitated sulphate of iron. The last column gives the ferrous iron by assay with potassic dichromate.

By method given, using 200 Gm. of iron sulphate:

Product.	Alcohol used.	Per cent. of $FeSO_4.7H_2O$.
84 Gm.	50 C.c.	98.5 per cent.
143 Gm.	50 C.c.	100. "
100 Gm.	50 C.c.	100. "
98 Gm.	50 C.c.	97.8 "
86 Gm.	50 C.c.	85. "
180 Gm.	60 C.c.	100. "
176 Gm.	60 C.c.	98.4 "

U. S. P. METHOD.

172 Gm.	640	90. per cent.
164 Gm.	940	98.8 "
182 Gm.	700	100. "
172 Gm.	791	96. "
152 Gm.	740	97.5 "

The Strength of Commercial Acids.

BY EDGAR L. PATCH.

WHEN the pharmacist orders acids U. S. P., he is very liable to get acids varying much from the standards.

The jobber sells what he has commonly. He may discriminate between 30° HNO_3 and 43°, and he may also observe whether the HCl is 20° or 22°, but he commonly leaves the retailer to particularize what he wants and determine that he has it.

Commercial sulphuric acid can be had of 66° B., this corresponding to a gravity of about 1.835, and strength of 93 to 94 per cent.

Manufacturers claim that 93.5 per cent is the strongest platinum distilled acid, and stronger acids distilled from cast iron are not pure.

The statement is sometimes quoted that nitric acid cannot be obtained of greater strength than 65 per cent without great difficulty, but it can be run off above 80 per cent in strength.

We submit the following table, showing the strength of these acids as found in the market:

BOUGHT AS U. S. P. ACIDS.

	HCl. Com. Per Cent.	HCl. Com. Imp.	HNO_3 Per Cent. Com.	HNO_3 Imp. Com.	H_2SO_4 Per Cent. Com.	H_2SO_4 Imp. Com.
No. 1.	30.6	$ClSO_4$	66.6	Fe.	94.8	$PbNO_3$
No. 2.	31.	$ClAsSO_4$	61.7	ClFe	93.	$PbSO_4$
No. 3.	34.8	SO_4Fe.	58.4	Fe.	92.	$FeBbSO_4$
No. 4.	33.8	SO_4Fe.	57.	SO_4Fe.	89.	PbClAs
No. 5.	34.1	SO_3Fe.			93.	$FeSO_3$
No. 6.	34.6	SO_3AsFe.	55.4		94.6	$PbSO_3$

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[*] Year Book of Pharmacy, 1878, 91, from Repert. de Pharm., 1877, 142.

[†] NEW REMEDIES, 1881, 31.

[‡] Prof. Lloyd here assumes that caffeine is trivalent. The British Pharmacopœia of 1885 makes a like assumption, but the results of other work, including my own, show it to be univalent.

[§] Proc. Am. Pharm. Assoc., 1881, 344 (Chem. and Drug., 1881, 218, from Ber. d. Deutsch. Chem. Gesellschaft, 1881, 814), and Journ. Chem. Soc. Abst., 1881, 746, from same source.

[¶] Journ. de. Pharm. et de Chim. (5) v., 591-595. Translations in Drug. Circ., 1882, 156, and Amer. Journ. Pharm., 1882, 494, Abs. in Year Book, 1883, 94, and Pharm. Journ. and Trans. (3) xiii., 101.

[‖] Amer. Journ. Pharm., 1883, 398, and Year Book of Pharm., 1883, 94-95, and 1884, 59, from Archiv. der Pharm. (3) xxi., 175 to 186.

[**] Pharm. Jour. and Trans., June 8th, 1889 p. 998, from Pharm. Zeitung, April 17th, 1889.

[††] Amer. Jour. of Pharm., 1889, 288 (Proc. Amer. Pharm. Assoc., 1889, 206), both from Jour. de Pharm. et de Chim., April 1st, 1889.

[‡‡] Where last cited.

[§§] AMER. DRUG., 1884, 143.

[¶¶] AMER. DRUG., 1886, 195 (Proc. Amer. Assoc., 1886, 625), from Pharm. Zeitung.

BOUGHT AS C. P. ACIDS.

	HCl. Com. Per Cent.	HCl. Com. Imp.	HNO_3 Per Cent. Com.	HNO_3 Imp. Com.	H_2SO_4 Per Cent. Com.	H_2SO_4 Imp. Com.
No. 1.	26.05		66.4	Trace Fe.	96.	SO_2
No. 2.	31.6		68.5		96.	
No. 3.	33.5		56.5	Trace Fe.	94.	SO_2
No. 4.	32.8		67.	Trace Fe.	93.5	
No. 5.	33.8	Cl.	70.		94.2	Fe.
No. 6.	38.3	Cl.	69.77	Slt.Tr.Fe.	96.6	
No. 7.	32.4		69.87		95.8	Fe.
No. 8.	26.5	Fe.	57.	Fe.	94.5	Fe.
No. 9.	38.2		58.9	Trace Fe.	96.	
No. 10.	39.15	AsCl	56.5		95.6	

HCl Bought as Com.	HNO_3 Bought as 48°.	H_2SO_4 Bought as Com.
38.4 per cent.	70.1 per cent.	94.4 per cent.
32.15 "	69.25 "	94. "
31.8 "	71.2 "	92.5 "
34.7 "	as 48°	93.5 "
35.2 "	81.1 "	92.4 "
35.3 "		
34.7 "		
32.8 "		
35.7 "		

Hydrocyanic Acid.*

BY EDGAR L. PATCH.

F. T. **Drake**, Ph.G., Mass. College of Pharmacy, conducted a lengthy series of experiments to determine this point practically, and submitted all the leading makes to examination for strength and character of solvent. He found the strength of original packages varying from 0.114 per cent to 2.075 per cent, and of broken packages from the same range.

He demonstrated that 0.1 per cent free HCl prevented the decomposition to carbon, paracyanogen, and ammonia that often takes place. He found that 20 per cent of glycerin has a tendency to hinder change, but after one year even these solutions suffer decomposition.

The statement is made by others that strong solutions in large bulk undergo decomposition much more readily than weak solutions in small bulk.

The following experiment bears upon this theory: 2,000 Gm. of potassium ferrocyanide, 1,520 Gm. of sulphuric acid and the distillate, received in 6,000 Gm. of diluted alcohol, gave 7,700 Gm. of 4.29 per cent acid. This was in part stored of full strength in five pint and one quart green glass bottles and in part of 2 per cent in quart and one ounce.

The contents of the one-ounce bottles decomposed. The larger bottles have been kept eighteen months without change.

Error in calculation of strength is made by following the U. S. P. 1880 assay. It says: "13.5 Gm. of acid, with 30 C.c. of water, mixed with aqueous suspension of magnesia to paucity, a few drops of chromate of potassium added, should require 50 C.c. of volumetric silver solution to produce a permanent red color (chromate of silver), showing 2 per cent acid."

The reaction between the acid and silver solution is alone as follows:

HCy (molecular weight, 27) plus $AgNO_3$ (molecular weight, 169.7) equals AgCy plus HNO_3.

13.5 Gm. 2 per cent acid equals 0.27 Gm. of absolute, and would satisfy 1.697 of silver nitrate equal to 100 C.c. of decinormal solution.

When we use an alkali to saturate the acid, any excess of alkali dissolves the silver cyanide, and we get too high a reading. If an insufficiency of alkali is used, we get a precipitate too soon and get too low a result.

If we use magnesia to saturate the acid, we have

$$1.\ 2HCy + Mg(HO)_2 = MgCy_2 + 2H_2O.$$

Titrating the solution of magnesium cyanide with silver solution, we have

$$2.\ MgCy_2 + 2AgNO_3 = MgCy_2.2AgCy.$$

A soluble double salt, representing, for each 13.5 Gm. of 2 per cent HCN, 50 C.c. of decinormal silver solution.

If we now add a drop more of silver solution we get a precipitate of silver cyanide; and if we read this first precipitate as the end reaction, 5.13 Gm. of 2 per cent acid equals 50 C.c. of silver solution. If, however, we used chromate of potassium indicator, we will not have a permanent precipitate of silver chromate until all the magnesium cyanide is decomposed, or until 100 C.c. of silver solution have been added.

Failure to note this has led many to read a 2 per cent as a 1 per cent acid.

If we depend on the chromate reaction we must be sure to have plenty of magnesia present to combine with the liberated nitric acid at once, and prevent its interference with the chromate reaction. We know the basicity of HCN and HNO_3 is similar, but the solution is so dilute that it unites with the $Mg(HO)_2$ slowly.

To illustrate:

A magnesium suspension was made by precipitating 50 Gm. of $MgSO_4$ with 17 Gm. NaOH, washing precipitate and adding water to make of 50 C.c. The same acid was given to different parties.

No. 1 weighed 3.375 Gm. acid into ½ C.c. magnesia suspension diluted with 10 C.c. of water, shook well, added 4 drops of K_2CrO_4 sol., titrated at once. Used 50 C.c. $AgNO_3$, and no red chromate appeared. Added more magnesia and shook, and red color appeared.

No. 2 do. with 1 C.c. magnesia suspension with negative results.

No. 3 do. with 2 C.c. magnesia suspension found red chromate at 24.4 C.c. equal 1.952 per cent.

No. 4 do. used 24 C.c. equal 1.92 per cent.

No. 5 do. used 24 C.c. equal 1.92 per cent.

Attention should perhaps be called to the error in some of the pharmacopœias directing the use of potassium dichromate as an indicator.

Diluted prussic acid does not keep much if any better in dilute alcohol than in water. A small percentage of HCl preserves from change.

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* Query 74. "Is a diluted alcohol solution more permanent than a simple aqueous solution?"

Unchangeable Elixir of Three Phosphates.

BY EDGAR L. PATCH.

There are few subjects that have been more written upon than this, yet the constant appearance of this query shows that pharmacists are not yet agreed upon the subject. Investigation and classification of 22 formulas show that only 2 furnish 3 phosphates: 9 contain iron as scale phosphate, 7 contain iron as scale pyrophosphate, 2 contain iron as scale ppt. ferrous phosphate, 4 contain iron as scale citrochloride, 7 contain quinine as alkaloid, 11 contain quinine as sulphate, 2 contain quinine as hydrochloride, 2 contain quinine as phosphate, 12 contain strychnine as sulphate, 8 contain strychnine as alkaloid, 2 contain strychnine as phosphate.

Iron, in its peculiar combination, is present in proportion of 1 to 2 grains in each fluidrachm; quinine, from $\frac{1}{16}$ to 1 grain; strychnine, $\frac{1}{120}$ to $\frac{1}{32}$ grain.

It may be that the therapeutic effect depends upon the bases, independent of the acid radicals, and it may not matter what these are; but if this is true let us christen the elixir under a legitimate parentage, and not mislead the physician and patient by introducing a bastard under an alias. To style an elixir "Three Phosphates," when composed of citrochloride of iron, quinine sulphate, and strychnine sulphate, is worse than calling Topsy Uncle Tom.

It is well known that elixirs containing scale phosphate or pyrophosphate gradually darken, the deepening of color increasing in rapidity in proportion to the amount of ammonia present. It is also known that elixirs which are not made slightly alkaline with ammonia are more liable to precipitate when chilled or when diluted with water.

Can a formula for true elixir of three phosphates be devised? It is well known that the present United States Pharmacopœia formula syrup of 3 phosphates, using scale salts, troubles by darkening and precipitating a basic phosphate of iron mixed with alkaloids. The old Eaton's or Aitken's Syrup, made with precipitated ferrous phosphate, also troubles, but not to the same extent, while

Spohr's formula keeps much better. The latter is not truly "three phosphates," and Mr. E. H. Grover, of South Boston, suggests that all these be displaced by a permanent syrup, in which true phosphates are held in solution by free hydrochloric acid liberated in the reaction.

His formula is as follows:

Solution of Chloride of Iron, U. S. P.	4 fluidrachms.
Phosphoric Acid, U. S. P.	11 fluidrachms.
Strychnine Alkaloid	4 grains.
Quinine Alkaloid.	128 grains.
Tincture of fresh Orange Peel	4 fluidrachms.
Syrup...	enough to make one pint.

The formula is based in part on the following:

Four fluidrachms of 57 grains of a solution of specific gravity 1.404 would weigh 320 grains, and if of official strength, contain about 60 grains of oxide of iron.

Considering the formula for true ferric phosphate as $Fe_2(PO_4)_2 4H_2O$ (mol. weight, 374), we have the equation, $159.8 Fe_2O_3 : 60 Fe_2O_3 :: 374 : 140$ grains ferric phosphate.

This is a slight excess. Recalculation might make the formula, assuming the iron solution to be strictly official,

Solution of Chloride of Iron................	14 C.c.
Phosphoric Acid, 50 per cent..............	38 C.c.
Strychnine Alkaloid...	260 Mg.
Quinine Alkaloid.........	8.3 Gm.
Fresh Tincture of Orange Peel	14 C.c.
Syrup.....................	enough to make 473 C.c.

An elixir modelled upon this formula in detail would not give quite the strength usually maintained.

Phosphate of Iron........................	2 grains.
" of Quinine	1 grain.
" of Strychnine.................	$\frac{1}{60}$ grain.

We may make such a product by the following:

140 grains phos. iron : 156 grains : : 4 fluidrachms of sol. chlor. iron : 7 fluidrachms and 20 minims, or about 28 C.c. Considering the formula for quinine phosphate to be $(C_{20}H_{24}N_2O_2)_2.H_3PO_4.8H_2O$ (mol. weight, 890), 128 grains of phosphate would require about 100 grains of monohydrated quinine, or about 110 grains of official trihydrated.

Considering the formula for strychnine phosphate to be $(C_{21}H_{22}N_2O_2)_2.H_3P_4O.7H_2O$ (mol. weight, 892), $\frac{128}{60}$ grain would require about 1.6 grains of strychnine alkaloid. To satisfy these bases would require about 330 grains of 50 per cent phosphoric acid. Allowing an excess of acid, then, we might construct a formula for true elixir of three phosphates, as follows:

Solution of Chloride of Iron, U.S.P. 1880.	28 C.c.
Quinine Alkaloid......................	7.128 Gm.
Strychnine Alkaloid........	.104 Gm.
Phosphoric Acid, 50 per cent...........	27 Gm.
Alcohol....	80 C.c.
Simple Elixir	300 C.c.
Syrup ....q. s. to make	473 C.c.

Mix the solution of iron and the phosphoric acid, and in this dissolve the alkaloids. To this add the syrup, and then the simple elixir and alcohol, previously mixed. This is not a very pleasant elixir, nor are any of the same strength. It has also the objection of having very little color. This can of course be remedied by coloring. As it is the fashion to paint quinine red, this elixir might be colored with tincture of cudbear. Possibly the latest fad, that of black quinine pills, may make a discolored elixir of three phosphates popular. We have not had this product made long enough to test the effect of time and light upon it.

I submit as samples: 1. Diehl's Elixir freshly made.—2. Diehl's Elixir two years old.—3. N. F. Elixir freshly made.—4. N. F. Elixir two years old.—5. Alkaloidal Elixir freshly made.—6. Alkaloidal Elixir two years old.—7. Citrochloride Elixir freshly made.—8. Citrochloride Elixir some months old.—9. True Phosphate Elixir uncolored.—10. True Phosphate Elixir cudbear colored.—11. Improved Syrup of Three Phosphates.

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EDITORIAL.

MUCH might be said about most medicinal preparations from the point of view of their relative utility, as measured by their stability, expense of manufacture, and therapeutic effects, or their practicability as regards flavor, ease of dosage and administration, and facility of combination with other agents; but how seldom do we see attention given to these matters by the writers of pharmaceutical essays? It may be thought by some that it is hardly to be expected that one whose business it is to acquire money from the profits of preparing and dispensing such articles should look upon the cheapening of medicines as an object to be sought after; but is this a correct view? How is it that "patent" medicines have acquired such a hold upon the general public that they form a large part of the stock of the retail pharmacist, and have become so commonly used that even the fancy stores and groceries handle them? Has not the "Hundred Doses for a Dollar" business much to do with it?

What is it that underlies all this commotion regarding "cut-prices" but the natural tendency of most people to get what *seems* to be best for the least expenditure of money? We say "seems," because the real value is beyond the appreciation of the public at large, which is usually led and swayed by fallacious and bombastic advertisements. Yet even in the legitimate lines of the pharmaceutical profession the question of *cost* is bringing about many radical changes. The retail pharmacist who attempts to manufacture his own pharmacopœial preparations is confronted with the necessity of cutting down the profit upon their sale, until it is almost microscopic, in order to compete with manufacturing pharmacists who profess to be able to offer preparations far superior to those recognized by the pharmacopœia and put upon the market, and induce physicians to prescribe them—preparations which they themselves invent and control by patents and trade marks. One of the first things considered by any manufacturer is the *cost* of producing; and the price of the product is often fixed so low that it is only by a studious attention to details and methods, by buying on the most favorable terms and utilizing every by-product, that a profit is gained.

The retail pharmacist holds a much more difficult position, in so far as he is unable to purchase his raw materials in large quantities, and, so far as official preparations are concerned, is restricted by legal requirements which prevent him from deviating far from the ingredients, processes, and standards of the Pharmacopœia. While the proprietor of a secret or trade-mark preparation is able to vary the composition of the article to which the trade mark applies or the composition of which is his secret, the regular pharmacist has no such opportunity. The manufacturer has no occasion to deal in anything which he does not find profitable, while the retailing apothecary is compelled to keep a great many things besides postage stamps which, in the long run, do not pay for the investment and expense of handling. And there is the more occasion for such modification of official forms for medicaments as will cheapen the cost of manufacture, increase their therapeutic value, and permit them to be sold with profit at a price which will compete with the horde of cheap nostrums, whenever these conditions are to be consistently attained.

Another factor has become prominent of late years in the enormous consumption of synthetic products which are controlled by comparatively few individuals and are correspondingly lessening the consumption of remedies of natural origin. For example, not a tithe of the opium and morphine is now used for the relief of pain and production of sleep that were employed before some of the new anodynes and hypnotics were discovered. And nearly every month witnesses the advent of other artificial substances which more or less effectually replace remedies to which we have been accustomed and which are as common property as all other articles of commerce. The reasons for this substitution may partly be the natural love for novelty, partly the manner in which they are advertised ; but there can be little doubt that the fact of their being more uniform in composition, and cheaper as regards the effect produced in proportion to the amount required, has something to do with the change. To compete with these the remedies derived from natural sources have got to be cheapened, rendered more uniform in composition, and prepared in such forms as facilitate their administration. To do this is the business of the pharmacist, and, unless it be done, one synthetic product after another will supplant, sometimes not one only, but a number of the articles of our old materia medica, until the bottles of tinctures and fluid extracts, syrups and mixtures, will serve rather as shelf ornaments and relics of the past than as containers of remedies actually in demand.

It has been considered the correct thing among ultra-pharmacists to decry elixirs, and the revisers of our Pharmacopœia have been reluctant hitherto to admit them to its hallowed precincts; but the elixir has not only come, but will stay until its mission is accomplished. Like other novelties, it was abused while it was in fashion, and some of the compounds which were better evidence of ingenious polypharmacists than of pharmacological wisdom have failed to survive their premature birth; but the elixir, as a model, has many good features, while its bad ones offer less troublesome problems than some which attend the question of "standardization."

The tablet triturate which Dr. Robert M. Fuller gave so freely to the pharmaceutical world, might have made the fortune of any one who would have controlled its manufacture by a patent and had business tact; but what advantage are pharmacists generally deriving from it now that its use is unrestricted ? While it affords opportunities for accurate dosage, rapidity and facility of manipulation, simplicity of apparatus and cheapness of production, its manufacture on any considerable scale is limited to a few, and the number who use it at all is not much greater.

Owing to the number of valuable papers presented at the recent meeting of the American Pharmaceutical Association, and the continued report of proceedings, we have thought it best to devote this entire number to Association matters, and to postpone, until the next, other papers, including other interesting ones presented at the meeting.

The change of place of meeting from Cresson Springs, Pa., to the Crawford House, White Mountains, N.H., shows the strength of the female contingent and the importance of consulting their wishes in this portion, at least, of the Association's affairs. Is it possible that they may hereafter make use of this entering wedge to influence the election of good-looking men only to the offices, or to demand a representation of women on the local committee or even in the Council? A demand for separate schools of pharmacy for women will be but another step, and the female cashier at the desk near the door may then exchange her high stool for the soda fountain opposite, and manipulate the tumbler washer and the syrup faucets instead of the cash drawer. Conceive, if possible, the dilemma of the customer who wishes something in his soda water, but does not dare to wink at the dispenser of beverages; or the state of mind of the latter in her effort to understand whether the wink is to be taken as intended for her personal benefit or only in a figurative sense.

These suggestions are but few compared with the number of serious possibilities growing out of what might at first appear to be a trifling innovation, but should receive careful attention before it is too late. It hardly needs to be said that secret sessions and private circulars will be necessary expedients for discussion of such a delicate subject, and that these should, perhaps, be further restricted to very confirmed bachelors and antiquated widowers.

The paper by Prof. Lloyd, on pages 152–155, would seem to justify a remark that, of late years, the meetings of the American Pharmaceutical Association appear to have been the fortunate occasions for notable advances in scientific pharmacy through his efforts. May it not be practicable hereafter to state in advance, among other attractions, that "Prof. Lloyd will present a paper making, *as usual*, an announcement of some important observations and discoveries "?

A writer in one of our contemporaries quite recently implied that Prof. L. is disposed to "sit on the fence" in the matter of standards for alkaloidal galenicals. It may be pertinent to inquire whether there is any room on that fence for a few more pharmaceutical chemists ?—which reminds us of that story about President Lincoln, who, being told that one of his major-generals was addicted to drinking whiskey, remarked that if he could find out the particular brand of whiskey the general preferred he would like to send a barrel of it to each of the other major-generals in the army.

This being the season when agricultural laborers are in demand, it might be well for "CINCINNATUS" to return to his plough, and postpone the consideration of "fences" until his crops have a tangible existence.

AMERICAN PHARMACEUTICAL ASSOCIATION.

[REPORT CONCLUDED.]

SECTION ON SCIENTIFIC PAPERS.

First Session, April 30th, 1891.

At 3:40 P.M. the Section on Scientific Papers met, with PROF. E. L. PATCH, Chairman, in the chair, and C. S. HALLBERG, Secretary.

The CHAIRMAN read an address, in which he reviewed at some length the work of this Section the last year. The paper was an able and interesting account of the work done, and was replete with very interesting suggestions.

"In the little experience and observation I have had of the work of the Section, it has occurred to me that we lose very much in the spirit which has been manifested in the work of the Section. Perhaps I have judged wrongly, but it has seemed to me that there has been a hypersensitiveness on the part of those engaged in the work of this Section not altogether different from that manifested in a country choir—a desire for precedence and prominence and over-criticism of the work of others. This has undoubtedly prevented some from giving what might be helpful to us, and has prevented others from engaging actively in the work of the Section.

"I come before you, then, to-day, as the chairman of this Section, not in the spirit of a quasi-scientific feeling which is certainly manifested by many, but simply as a fellow-druggist aiming only to accomplish something that shall be to our mutual advantage. We perhaps fail to remember that the rank and file of pharmacy are desirous of points of practical importance and interest to them; and while those who stand upon a higher latitude may point at these contributions as unscientific, they may be eminently practical and helpful to pharmacy, so that we should encourage contributions of all kinds, remembering that what may not be helpful to us may be helpful to our neighbors.

"The Committee of the Section, whose report I now present, say among other things:

"'Over one hundred requests for papers have been made to the Section.'

"No request has been made for aid in research, but it was understood some had been made to the Association. As there had been a great difficulty in obtaining original contributions, owing to the lack of time of members to prepare them, it had been thought proper to suggest that a person of unusual ability be employed by the Association to make research and contribute the literature thereof to the Section, and that an appropriation be made therefor."

On motion, the Chairman's address, the committee's report, and the recommendation therein were referred to a committee of three, to report at the next session of the Section.

Nominations for officers for the ensuing year were next made, and Messrs. C. S. HALLBERG and HURTY were mentioned for chairman, and H. W. SNOW was nominated for secretary.

The regular order of business was then taken up, and under that head the reading of scientific papers was begun.

The first of the papers read was one drawn up by PROF. CHAS. MOHR, of Alabama, which treated of the several features of the vegetation of Louisiana and adjoining regions, and the products in relation to pharmacy and allied industries. The professor dwelt on the natural advantages of the section named for vegetation in general, and added a minute explanation of all the principal species of vegetation found in Louisiana and adjoining country, and gave attention to the shrubbery found there. The relation of this vegetation to pharmaceutical uses was dwelt on, and the fruits of the country, on which experiments for the benefit of pharmacy had been made, also engaged his attention. A long and interesting discussion on the statements contained in the paper followed, and it was resolved to give Prof. Mohr a vote of thanks.

A communication from the Commercial Club, offering its hospitalities to the delegates, was read by the chair, and a vote of thanks tendered to that organization.

A paper on "Syrup of Lactucarium" was then read by MR. G. H. KLIE, of St. Louis. He was followed by PROF. ALONZO R. STEVENS, of Michigan, who delivered an address on "Lead Oleate *vs.* Lead Plaster."

Queries 61, 62, and 87 were answered and discussed, relative to the manufacture of nux vomica, and the various methods explained of testing this drug.

A paper by C. S. HALLBERG was read, which gave a great deal of information about the cultivation of oranges and lemons, and especially valuable to those engaged in this branch of fruit culture.

A paper on "Caffeine Salts," their composition and preparation, was read and then discussed by PROF. H. W. SNOW, Ph.C., of Detroit. In this paper he proved satisfactorily that it was easy to prepare salts with caffeine in the case of stronger inorganic acids, which is not the case with organic acids.

One of the most interesting and thoroughly discussed papers of the session was the next one, which was read by MR. M. S. H. LEAVITT, of Massachusetts, on the following subject: "What is the duty of the professional pharmacist regarding patent medicines? Discuss the subject from the standpoint of the public. What is a conservative course?"

The author said there was a lack of reliable information on the part of many physicians regarding the therapeutical qualities of the majority of patent medicines, and that the published formulas of numbers of them could not be relied upon.

He cited an instance of a physician of his acquaintance, who would prescribe a certain cough mixture known to contain a large percentage of morphine, and to 2 ounces of the cure would add 2 grains of acetate of morphine. If the formula was known to him, he would not think of doing so. He was not in a position to so advise him, as he explained.

Several members spoke regarding the paper in the same terms, that formulas were, as a rule, so unreliable that pharmacists should adhere strictly to the Pharmacopœia whenever possible.

MR. EBERT said that, as the Association had in the morning session agreed to take care of patent medicines, they should employ an official analyst, at a large salary, to examine and make known the contents of preparatory medicines.

All papers were on motion referred to the Publishing Committee.

The Section then adjourned to 8 P.M.

Second Session on Scientific Papers.

It was half-past 8 o'clock when the adjourned meeting of the Section was called to order.

The first business was to take action on the nominations for officers made at the afternoon session of the Section.

PROF. C. S. HALLBERG, of Chicago, was elected Chairman of the Section, MR. H. W. SNOW was elected Secretary by acclamation.

The reading of papers being resumed, MR. CHAS. A. HEINITSCH, of Pennsylvania, exhibited a specimen of the laurel bush from which camphor is made. He dwelt at length on the practicability of the cultivation of this plant in the South, and gave assurance that it could be readily done at a much lower cost than it at present costs to import the drug from the countries of the East.

"The Drug Trade and the U. S. Pharmacopœia" was the next subject for discussion, and Mr. J. G. MEANS, of Natchez, Miss., read an interesting though brief article on the subject. A good deal of technical discussion on the paper followed, and at the close of these remarks papers were read by title, as follows: "A Complete Accident Case," and "Thiersch's Antiseptic Solution," both by ADOLPH LEVY, who was not present. A like course was taken with PROF. JNO. T. DAVIDSON'S paper on the "Manufacture of Antiseptic Material." "The Method for the Determination of Valued Mustard" was the subject of another paper, which the absence of the author, PROF. L. E. SAYRE, of Kansas, also necessitated reading by title.

The next paper was entitled "Remarks concerning a Scheme to Establish a Comparative Standard for Alkaloidal Galenicals." The author was PROF. J. U. LLOYD, of Cincinnati. He made the paper all the more interesting by making, during the course of it, a number of scientific experiments, which were regarded with attention by all the members of the Association. His process of assaying nux vomica was thoroughly explained, and at the close of the professor's remarks he was greeted with long-continued applause.

The lucid explanation of the professor in reference to the extraction of guarana and the plan for the assaying of the fluid extracts of the drug also met with earnest attention by the convention.

Prof. Simon, of Baltimore, after a few well-turned remarks, offered a motion to render to Prof. Lloyd a vote of thanks for the clear and able manner in which he had presented the subject to the convention. It was thorough and complete, as were all the other experiments which Prof. Lloyd made, and at the close of Prof. Simon's eulogy the entire gathering signified its approval by a standing vote.

Messrs. Hertz, Goode, and Maisch individually complimented the discoverer on the results of his labors.

In reply to the numerous compliments paid to him, Prof. Lloyd stated that he had stumbled on the discovery, which he had been able to apply to all drugs save opium, but expressed the hope that he would soon overcome that difficulty, as he had the others that had beset his investigation.

Several members expressed the opinion that they had been well repaid for the trip by listening to Prof. Lloyd's explanation of his discovery and witnessing his experiments.

Prof. A. B. Stevens, of Detroit, presented a paper on "The Selection of Camphor Used as an Adulterant," and, in relation thereto, he entered into a full description of the method of arriving at the detection.

"Cannot a Simpler, More Reliable Test for the Lithium Salts be Devised?" etc., was the subject of the next paper, which was read by title, as was another by Prof. E. L. Patch on the question: "Cannot a Process for Granular Sulphate of Iron C. P. Replace that for Precipitated Sulphate of Iron?"

Mr. H. Tiarks, of Monticello, Ia., submitted and read a paper entitled "What is the Best Method of Preserving Mucilage of Acacia?" which was discussed by several of the members.

The Section then adjourned to 3 P.M. Thursday afternoon.

Third Session, Thursday, April 30th.

The Section was called to order at 3:30, Chairman Patch presiding, and the reading of minutes being waived, the presentation of papers was resumed.

Prof. A. L. Metz, of New Orleans, began the series of papers by addressing the Section upon the subject of the "Louisiana Perique Tobacco."

Prof. Metz, by gradual advances, led from the planting of the tobacco through its stages to the boxes and moulds which were to give it shape, up to its preparation for the market. There were raised about 19,000 pounds of perique tobacco, which was put in carats varying from 3½ to 4 pounds. The effects of perique tobacco were much stronger than other tobaccos, and the percentage of nicotine found in it was 8 per cent. This percentage exceeded that in all other known tobaccos.

It had been advanced by a leading New Orleans firm that the qualities of the perique could not be attained by other than the primitive methods of curing at present in use.

Mr. Henry Trimble, of Arizona, read a paper upon the "Coloring Principle of Frasera Walteri," composed by himself and Prof. J. U. Lloyd, of Cincinnati.

The root of Frasera Walteri dried produced a substance which at first was supposed in 1840 to be a combination of gallic acid and a peculiar yellow color principle. The experiments conducted by Prof. Lloyd in 1879 attracted attention, and by continued experiments compounds were gotten at certain melting points without the use of animal charcoal, and the treatment had been found to facilitate the purification, and that the color was somewhat lighter. Both compounds gotten were insoluble in water, or only to so small an extent as to color it slightly with yellow.

A paper on "Hydrocyanic Acid" was read by Prof. Patch, as an answer to the query, "Is a diluted alcohol solution more permanent than a simple aqueous solution?"

Experiments to determine this point practically for strength and character of its solvent had declared that strong solutions in large bulk undergo decomposition much more readily than weak preparations in small bulk.

The lecturer went into the minutiæ of errors in calculation of the experiments preceding the above conclusions, and gave a list of results by the introduction of other solutions. He called attention to the errors in some pharmacopœias directing the use of potassium dichromate as an indicator. Diluted prussic acid, in illustration of his paper, he said, did not keep much if any better in dilute alcohol than in water.

In discussing this paper, Prof. Remington said that 1 per cent hydrochloric acid will prevent dilute hydrocyanic acid from decomposition. He recommended its use. He also recommended the use of a cork stopper for bottles containing this acid, in place of glass. Dr. Squibb, in sending out hydrocyanic acid, had found that the acid was preserved much better when cork stoppers were employed, though he could give no reason for this.

The Chairman read another paper of his own, entitled "What Proportion of Cinchona Barks of Commerce Correspond to U. S. P. 1880 Requirements?"

This was a critical essay upon the errors and the methods in obtaining either a total alkaloid or for quinine.

An essay upon the duties of a hospital steward in the U. S. Army was contributed by Wm. Roberts, U. S. A., and was read by Secretary Hallberg.

The article was one describing the hardships of a steward, whose multifarious duties extended to his being a soldier, nurse, clerk, instructor, dentist, and numerous other capacities. The essayist did not picture the life of complacency or full reward for the devotion necessary to fill the varied positions.

The paper was accepted and referred for publication, although Mr. Roberts is not a member of the Association.

Prof. E. L. Patch submitted his paper entitled "Is there a Reliable Process for Assay of Digitalis?"

The various standards adopted by manufacturers, ranging from 0.1 to 1.5 per cent, seemed to indicate, Mr. Patch thought, that no reliable method existed. Tables of the characteristics ascribed to certain principles and methods of arriving at a uniform standard were given in his paper.

There were no less than three substances on the market named digitalin. If Nantivell's process for digitalis, or those of the French, British, German, and U. S. Pharmacopœial methods, were followed, they would each give a different result. The process suggested by Mr. Patch, and stated in his paper, gave an excellent product, and much better defined and more constant in quantity and character than any other method that yields a crystalline product. Its reactions were given fully in his paper.

The business of the Section was now concluded, and, the installation of officers being in order, the Chair appointed Messrs. Ebert and Simon a committee to conduct the newly appointed executive of the Section to the place of honor.

Prof. Patch, on retiring, thanked the Section for the cordial support he had received in his work during the past year.

He congratulated Mr. Hallberg on his election to the Chairmanship of the Section.

Mr. Hallberg, in responding, thanked the Section for his election and Prof. Patch for his complimentary remarks, and said that it would require a chairman of extraordinary ability to surpass the excellent work done by Prof. Patch, who, finding a dearth of original contributions, had gone to work, made researches, and submitted the result in several papers to the Section.

Messrs. Snow and Hurty, the Secretary and Associate Member of the executive, respectively, briefly acknowledged the honor of election.

PROF. SIMON, on behalf of the committee appointed to consider the Chairman's address and the recommendation of the committee, reported. The suggestion that a fund be created for an official analyst for the Section had been considered. The committee reported that there was no necessity for raising a fund for the purpose, as one existed in the Centennial Fund for research in pharmacy. But little use had been made of the fund, and the committee suggested that it be taken advantage of for the purpose indicated.

On motion of MR. FENNEL, the report of the committee and its recommendations were accepted and approved.

On motion of MR. WHELPLEY, a committee of five, consisting of Messrs. Fennel, Conrad, Trimble, Leavitt, and himself, were appointed a committee by the Chair to assist the Section in procuring queries for answering.

On motion of PROF. SIMON, a hearty vote of thanks was tendered Prof. Patch, the retiring Chairman, for his excellent work, the members present showing their approval by a rising vote.

The Section then adjourned to meet at the Crawford House, White Mountains, N. H., in 1892.

SECTION OF PHARMACEUTICAL EDUCATION AND LEGISLATION.

The session of the Section devoted to Legislation and Education was held at 8 o'clock Thursday evening, April 30th, MR. WM. SIMON, of Baltimore, Chairman, presiding, with I. C. HOGAN, of Chicago, as Secretary.

Portions of the Secretary's annual report were read, giving a synopsis of the laws passed by the different States in reference to pharmacy, which was prepared in 1890.

The report covered a large field, the States making amendments favorable to pharmacy being named, the Secretary having written over 200 letters to embody information in the report.

The CHAIRMAN followed the reading of this report with the delivery of his annual address. In it he took the ground that the progress of the States could be traced in their fostering education. The committee had been retarded in carrying out their plans, but all that could be done had been embodied in the report of the Secretary. It was next to impossible to get the data of statistics desired, but such as were obtained showed a great increase in progressive pharmacy over the year past. Various colleges showed a tendency to increase their usefulness by the extension of lecture courses and work in their laboratories.

The Chairman also called attention to the fact that a more thorough system of education in pharmacy should be adopted, and he gave it as his opinion that even after graduation some of the graduates were not as well qualified for their functions as they should be. He recommended that steps be taken to induce those colleges which have no system to adopt a plan of thorough examination both before and after matriculation.

The address was received with applause by the meeting, and referred to a committee, composed of Messrs. S. A. D. Sheppard, James Vernor, and John D. Kochan.

PROF. JOS. P. REMINGTON addressed the Section on "Recognition of College Diplomas by State Laws."

It was futile to argue, he said, that legislative laws had not been, as a whole, beneficial in their effect upon pharmacy. They had compelled druggists to qualify themselves in their branch, and that pharmacy had now passed beyond the development point. It was fully time for the legislature to go out of the experimental stage and pass laws for protection against ignorance in the department of pharmacy. The main objection to the passage of such laws came from physicians who believed that their rights were being infringed by the requirement of a pharmaceutical education. Prescribers should know how to compound. It was a fault in the State laws that the recognition was not given college diplomas. The doctor could not pass a college examination. One reason alleged was that the recognition of college diplomas gave opportunity for mushroom diplomas, but he thought its refutation was in a Pennsylvania college, whose legislature recognized the owner of its diploma a doctor. The real reason, he thought, of the objection was that it proposed to restrict new men in the doctor's business.

Prof. Remington made many strong points in favor of legislative enactments making diplomas necessary.

A paper was next submitted by PROF. H. R. SLACK, entitled "Some Practical Suggestions in Securing Pharmacy Legislation."

"Pharmacy legislation," he said, "is the maximum of protection to the public at the minimum tax on the pharmacist, the greatest good to the greatest number, although it appeared to the average law maker that it was to secure class legislation. It could be easily demonstrated that the object sought was for better protection to the public, by confining the dispensing of prescriptions and sale of poisons to properly qualified persons."

The speaker related the difficulties in his own State, adducing the basis upon which the pharmacy committees should approach legislative bodies.

The paper, on motion, with those preceding it, was received.

"Would Reciprocity in Registration be Practicable through the Medium of Uniform Examinations, and Questions coming from a Common Centre?" by PROF. CHAS. M. FORD, of Denver, Col., was the title of the next paper in order.

Prof. Ford's position was that, through efficient aid of State boards, a liberal measure of protection could be secured by the pharmacists; but the protection was incidental to the indirect results of the enforcement of the law. He urged, in the paper, that to properly enforce the laws of the different States on pharmaceutical matters, the proprietors should not employ in the capacity of managers any person who was not a wholly responsible individual.

As to the issuance of certificates, Prof. Ford said the aim of the members of the Association should be to secure a certificate which would carry unquestioned evidence that the person to whom it had been given was at the time of its reception a thoroughly qualified pharmacist. He also suggested that, to receive interstate certificates, the candidates should be given a fair trial in practical fields. He considered that the American Pharmaceutical Association should be vested with the power of issuing certificates.

The following titles were announced, but the papers were, owing to the lateness of the hour, not read:

"To what extent should the Study of Botany be Compulsory in Colleges of Pharmacy, and what are the Best Methods of giving Instruction in that Branch, so as to make it Interesting to the Student?" by D. M. R. CULBRETH, of Baltimore, Md.; "A Method of Dose Instruction," by PROF. GEO. SPITZER, of Lafayette, Ind.; "The Drift of Pharmaceutical Education," by SEWARD W. WILLIAMS, East Orange, N. J.

MR. C. S. HALLBERG, of Chicago, read a paper entitled "Will not the Pharmaceutical Education of our Young Men be greatly Improved, and the Professional Status of the Apothecary be materially Elevated, by Increasing the Time required at the Colleges of Pharmacy to Three Sessions (of Six Months each), the last of which should be devoted entirely to Advanced Practical Work in Microscopy, Pharmacology, Chemical Analysis, and Pharmaceutical Assaying?"

Mr. Hallberg insisted that nothing but an affirmative answer could be made to the query. He favored preliminary education as a means of attaining success in the fields of pharmacy, and held that two full six months' courses were sufficient to fairly qualify a young pharmacist, provided that he had ample practical experience, but a less thorough course would not meet the requirements of the calling.

In connection with this paper, he offered the following resolution: "That colleges of pharmacy be requested to extend the term of their respective courses of instruction, at the earliest practicable time, to six months."

On motion of PROF. STEVENS, the resolution was unanimously adopted.

A motion to appropriate $50 for the expenses of the incoming Secretary of the Section, to aid in the collection of statistics, was adopted with the report of the committee.

Election of officers being called for, PROF. STEVENS was nominated and unanimously elected Chairman of the

Section, and **Secretary Hogan** re-elected to his position for an unlimited term.

The appointment of an Assistant Secretary was delegated to the Chairman and Secretary.

Before adjournment of the Section, the Chairman insisted upon the installation of officers. Mr. Chas. Dohme and Mr. A. E. Ebert were delegated to escort the new officers to the Chair, where addresses suitable to the occasion were made.

The Section then adjourned *sine die.*

Final Meeting of the General Session.

Friday, May 1st, 10 A.M.

The third general session and final meeting of the Association was called to order by **President Taylor** at 10 A.M. There was a large attendance present, and a great many ladies who had not attended the previous sessions took advantage of the last meeting to be present.

The first business disposed of was the reading of the minutes of the last session of the Association, and of the Council, which on motion were approved.

Secretary Maisch stated that 20 new applications for membership had been received by the Association, making a total of 167 new members added to the roll of the organization since the commencement of the Thirty-ninth Annual Convention, which was a very flattering showing for the Association. This information was received with great applause.

At the last session of the Section on Commercial Interests a committee of 9 members was appointed to consider the question of rate-cutting on proprietary articles, and the preamble of the report submitted by the committee provoked considerable discussion. The preamble, however, was finally adopted.

Mr. Alexander now moved a reconsideration of the vote by which the preamble was adopted, and which preamble read as follows: "Whereas, The indiscriminate sale of medicines by the ignorant and untrained is an evil of long standing, and public welfare demands that medicines should be dispensed by experienced persons solely." He stated that while this clause did not amount to a great deal, yet it had aroused some feeling on the part of some old members of the Association, who objected to it. It was thought that this objectionable preamble might therefore be withdrawn out of regard to their feelings in the matter.

The motion was duly seconded, and carried, which was followed by a second motion to strike the preamble from the report, which was also put to a vote and carried unanimously.

Delegates from the National Wholesale Druggists' Association presented a communication asking for recognition in the meeting, and on motion the gentlemen were requested to accept the privileges of the floor.

Mr. M. W. Alexander presented a petition signed by 40 of the ladies of the party, who urged that the place of meeting for the next annual convention be changed from Cresson Springs, Pa., to the Crawford House, White Mountains, N. H. The petition also set forth the advisability of changing the date of the Fortieth Annual Meeting from the fourth Monday in August to the first week in September. When the question of the next place of meeting of the Association was first brought up, it was the cause of a spirited discussion, and though the committee to whom was referred the selection of a place reported that the Crawford House had been selected, the opposition to that place was so intense that it caused the changing of the place to Cresson Springs, Pa. The ladies were more successful in what they undertook than were the men in the arguments that they presented for the Crawford House, and after a short discussion it was resolved that the petition should be granted, and that the recommendation be adopted as the sense of the Association. The only restriction placed on the matter was the vesting of the Executive Committee with the authority of changing the time of the meeting to any time that would to their minds best suit the purposes of the convention.

In accordance with the resolution passed by the Section on Pharmaceutical Education and Legislation at its last meeting, the question of appropriating the sum of $50 annually to the Secretary of that Section to enable him to prepare the necessary report on the educational and legislative interests of the Association, was then taken up by the Association, and the action of the Section in recommending the appropriation was approved.

As there was a great deal of business that could not be transacted by the Section in one session, it was resolved that, if possible, an extra session be arranged for at each annual meeting. As the constitution requires all changes in the by-laws to lie over for one year, the matter was continued for final action until the next annual meeting.

Mr. S. A. D. Sheppard, of Boston, gave notice that at the next annual meeting he intended to bring before the Association an amendment to Article 5, Chapter 8 of the by-laws, substituting the word "States" for "Local."

A vote of thanks was then extended to the mayor, the press, the local association, committee, clubs, etc., who had by their efforts contributed to the comfort and success of the meeting and the members present at it.

A motion was made by **Mr. Geo. Seabury** to appoint a permanent committee of three on Arrangements and Entertainment, which was laid over until the next annual meeting, as it entailed a change in the by-laws.

A lengthy discussion as to the advisability of appointing a temporary Committee on Entertainment followed the laying over of the resolution, and it was declared such action would not be advisable.

Mr. A. M. Whitney, of Florence, Mass., was then appointed Local Secretary for the ensuing year.

Mr. Ebert then brought up the matter of selecting the time and place of meeting by the Council, and changing the by-laws in order to effect this, an amendment which was lost by a large majority.

President Taylor announced that in May next the British Pharmaceutical Association will celebrate its fiftieth anniversary in London, and that an invitation has been extended to the American Pharmaceutical Association to participate therein. He recommended that the matter of acceptance of the invitation, and the drafting of suitable resolutions for transmission to the British Association, be referred to the Council. A motion being made to that effect was duly seconded and carried.

A vote of thanks was then tendered to the retiring officers and members of the Council for the able manner in which they had performed their duties during the past year.

The installation of officers followed, and **Mr. A. K. Finlay**, the newly elected President of the Association, was escorted to the chair, and Mr. A. B. Taylor, in a few well-chosen words, introduced him to the members and decorated him with the badge of office.

Mr. Finlay then said: "Gentlemen of the American Pharmaceutical Association, I thank you for your kindness and the distinguished honor you have conferred upon me by electing me to this office. I feel appalled at it, and think that you might have conferred the honor upon some one more worthy of it and better qualified to fill the conditions necessary for a position of this kind, but at the same time, although I feel somewhat my inability to fill this position worthily, still I am aware that I have around me a willing corps of good, sturdy workers, men I have known for many years, and men to whom I can always apply for information, and emulate them myself in their zeal."

The other newly elected officers were duly installed, and all briefly responded in answer to calls for speeches by briefly thanking the Association for the honor of election.

The Committee on the President's Address reported that the recommendation made by the President that national legislation be secured against patenting medicines was approved. Secretary Maisch now referred to this, and suggested that it be turned over to the Section on Commercial Interests for action, which, on motion, was agreed to and the matter referred.

A vote of thanks having been passed to the retiring officers of the Association, a motion to adjourn was in order, and the final session of the meeting of 1891 came to an end.

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What Constitutes a Drop? *

BY A. E. PHILIPPS, DRUGGIST,
Sanford, Orange Co., Florida.

> "THE size of drops varies from various causes, of which the nature of the liquid, the size and shape of the lip of the vessel from which dropped, the extent to which the lip is moistened, and the rapidity of dropping are the most important."—*Parrish.*
>
> "Small quantities of liquid medicines are often administered by *drops*, each of which is usually considered equivalent to a minim, or the sixtieth part of a fluidrachm. The drop of water and watery fluids is, sometimes, about that size; but the same is by no means the case with all medicinal liquids, and the drop even of the same liquid varies much in bulk, according to the circumstances under which it is formed. This is, therefore, an uncertain mode of estimating the quantity of liquids, and should be superseded where minim measures can be had." . . . —*U. S. Dispensatory.*

THE following results were obtained by a druggist from fluid extract of gelsemium (the article used was prepared by R. A. Hance, of Philadelphia):

Number of drops equivalent to a fluidrachm, minim measure—

From the original two-piut bottle	75	drops.
" 1 oz. Phil. oval vial	100	"
" minim measure	136	"
" medicine dropper	154	"

To be sure of accuracy, each experiment was repeated, with precisely the same results.

The subjoined prescription was at hand:

℞ Ext. Gelsem .... ʒ ij.
Syr. Tolut .... ℥ ss.
Aq. Camph .... q.s. ft. ℥ ij.
M.

Sig. Shake well and take a teaspoonful every hour as directed.

(It was not unusual for this prescriber to write "extract" when he intended fluid extract.) The dose printed on Hance's label was 3 to 10 drops, so this was to be the guide in the case, notwithstanding the fact that only 2 to 3 drops were directed of the U. S. Ph. preparation. But, before preparing the prescription, there were two questions to settle: First, what constitutes a drop of the gelsemium to be used? Second, how many drops will be included in the prescriber's dose?

Discarding the number of drops obtained from the two-pint bottle, because of its very thick and broad lip, and adding together the number of those obtained from the three other sources, the sum was divided by 3, and the result, 130, was accepted as a fair average number of drops of Hance's preparation to the fluidrachm, not forgetting that 149 drops were required of the U. S. Ph. fluid extract.

By this procedure it was apparent that the prescription in question, if prepared as written, would contain 260 drops of the gelsemium. The dose, as ordered, being $\frac{1}{16}$ of this quantity, would contain 16¼ drops, or little more than 1½ times the maximum dose authorized by the manufacturer, to say nothing of its being repeated "every hour as directed."

The circumstances were such that it was not practicable to consult the physician, which, it is acknowledged, is a plain duty in such cases. The patient was a chronic sufferer from neuralgia, and was undergoing an attack at the time. The case was familiar to the dispenser, and the fact that such a one, accustomed to strong remedies, might bear larger doses than usual, was considered. Yet to risk 1½ times the maximum dose of so powerful and dangerous a poison as gelsemium was not to be thought of. It seemed evident that the prescriber had fallen into the common error alluded to in the foregoing passage quoted from the Dispensatory, that a drachm of a liquid signified 60 drops, and that, therefore, the prescription would contain only 120 drops, instead of 260, and his patient would take about 7½—a little more than a medium dose—instead 16¼ drops, or 1½ times the maximum.

Acting on this idea, only 120 drops of the gelsemium were used, and this was dropped from the minim measure, that vessel having yielded nearly the accepted average number of drops to the drachm.

The object of this paper is not to present the course taken by the dispenser for criticism. It is understood, however, others might hold that under no circumstances should a physician's prescription be altered without his knowledge and consent. The dispenser admits, as intimated, the correctness of this principle, and practises such a rule, except in extraordinary cases like the one cited, when no alternative remained but to refuse to prepare the prescription and leave a well-known sufferer to suffer, as well as risk unnecessary damage to the doctor's reputation. It is of course his duty to state the circumstances to the prescriber as early as practicable.

But the object in view by the writer is to press the question forming the title of this paper, What constitutes a drop? From what vessel or instrument shall the dispenser drop the various liquids he proportions, in order to secure accuracy and uniformity and to know precisely what he is doing? What standard can be adopted by which both the manufacturer and the dispenser shall be governed, so that the dispenser's drop shall be precisely the same in quantity as that designated and intended by the manufacturer or Pharmacopœia?

The Dispensatory says: "The drop is an uncertain mode of estimating the quantity of liquids, and should be superseded by the minim where measures can be had." But this suggestion is of little value in the present discussion, as will be immediately shown. It can only imply that in the absence of the minim measure the dispenser is expected to *guess* at the quantity to constitute a minim. But even if he possess the minim measure, what then? He is still at a loss, without experiment, to find how many drops make a minim, unless he has a correct drop-former at hand, and then he would not need the minim measure. The number of *drops* is what he wants to know, *not minims*, if the prescriber, as usual, had drops in mind in proportioning his dose.

Prescribers too often confound drops with minims as identical; but this error, as illustrated, is likely at any time to lead to dangerous results, which the minim measure, if used in the same sense, would only *assure* rather than *avert*.

Durand, Proctor, Parrish, Talbot, all come forward with their tables showing how the bulk of a given liquid will vary, dropped from different vessels, or how various liquids vary in the formation of drops under different circumstances; but none of them offer an expedient by which the difficulty that these very facts place in the way of the dispenser can be obviated. The dispenser cannot possibly keep all these differences definitely fixed in his mind, nor can he exercise necessary despatch if he must stop to refer to tables and calculate, every time he needs to know, how many drops of a certain liquid constitute a given quantity, nor is it likely that the liquid he may be required to measure will always be named in the tables. His confusion, however, does not stop here, but reaches a torturing extreme when, as is often the case, he is compelled to drop the dose of some dangerous poison and finds that neither the table-makers nor any other duly constituted authorities have established a uniform rule for measuring or forming drops! Then it is that he is brought face to face with the question before us—and which, under such circumstances, assumes a grim aspect—*What* constitutes a *drop*?

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* Read before the Florida State Pharmaceutical Association.

As it is not practicable, for obvious reasons, to abolish the use of the term "*drop*" and substitute *minim*, universally, it is exceedingly important that some instrument should be adopted by the pharmacopœias as the *only officinal drop-former*, and the drop formed by this instrument should invariably be the quantity signified whenever the drop is directed or intended by the manufacturer or prescriber, or measured by the dispenser.

No further argument is needed to illustrate that the proportioning of doses by drops, formed in the present unofficinal, indefinite, "as-you-please" manner, is not only productive of confusion, but may, on the one hand, lead to falling far short of, and on the other to reaching dangerously beyond, the desired effect.

What, then—it is repeated and emphasized—what, then, constitutes a drop? Or what shall be adopted as the officinal drop-former?

It is needless to add that when this matter shall have been authoritatively settled, the prescriber will be able to substitute *preciseness* for *vagueness* in proportioning his dose of liquid poisons, the prescription druggist will be able to *know* instead of *guess* at the quantity of such poison wanted, and human health and life will be safer at the hands of both.

Process for Assay of Digitalis.[*]

BY E. L. PATCH.

THE various standards adopted by manufacturers, ranging from 0.01 per cent to 1.5 per cent, would seem to indicate that no reliable method exists.

Mr. F. T. Drake, Ph.G., and Mr. Brooks, class of '91, both of Massachusetts College of Pharmacy, have given some attention to the various schemes for assay of this drug, with comparatively negative results.

From this work, which is not yet complete, I present the following facts:

Investigators are not agreed as to whether digitalis contains digitalin, digitalein, digitoxin, digitin, digitonin, and digitaletin, or that these principles are derivatives of one or more bodies and are results of decomposition in course of process.

The term digitalin seems to be loosely used, and may mean any one of the above named or a mixture of all.

The therapeutic value has been ascribed by some to digitalin (?), by others to digitoxin, and by others to digitalein. Digitoxin is said to be in proportion of 0.01 per cent.

Blyth gives as process for determination: Precipitate 50 per cent tincture with PbA_2, wash precipitate with Na_2CO_3, ether, benzin, and CS_2, then decompose the lead compound.

The following table gives the characteristic ascribed to these principles:

	Digitonin.	*Digitoxin.*	*Digitalein.*	*Digitin.*	*Digitaletin.*	*Digitalin.*
Appearance	Amorphous.	Scales or needle cryst.	Amorphous.		Warty masses.	Powder. Porous mass. Scales.
Color	White.	Colorless.	White.		White.	White. Yellow white.
Soluble in H_2O	Freely.	Insoluble.	Soluble.	Slightly.	848 parts of cold.	Nearly insoluble.
Soluble in Alcohol	Slightly, more in warm.	Sparingly.	Soluble.	Freely.	3⅓ parts of 85 per cent.	
Soluble in Ether		Insoluble.	Insoluble.	Very slightly.		Almost insoluble.
Sol. in Chloroform	Some.		Soluble.	Very slightly.		
Soluble in CS_2	Insoluble.					
Soluble in Benzol						
Taste			Bitter.	Tasteless.	Bitter.	Very bitter.

The following table gives the properties of market products as found by Mr. Brooks:

	Merck's Digitalein.	*Merck's Digitalin.*	*Merck's Digitin.*	*L. & F.'s Digitalin.*
Appearance	Amorphous.	Powder.	Crystals.	Powder.
Color	Whitish.	Whitish.	Colorless.	Whitish.
Soluble in H_2O	Soluble.	Very soluble.	Soluble in hot, little in cold.	Soluble.
Soluble in Alcohol	Slowly soluble.	Soluble.	Some soluble.	Slowly sol.
Sol. in Chloroform.	Slightly.	Nearly insol.	Insoluble.	Insoluble.
Soluble in Ether	Insoluble.	Nearly insol.	Insoluble.	Insoluble.

	Brooks' U. S. P. 1870 Digitalin.	*Brooks' B. P. Digitalin*	*Brooks' Crys. Digitalin.*
Appearance.	Amorphous powder.	Amorphous powder.	Crystals.
Color	Dark col. Yel. brown.	Dark col. Yel. brown.	Colorless.
Soluble in H_2O	Some in hot, little in cold.	Some soluble.	Insoluble.
Soluble in Alcohol	Soluble.	Soluble.	Soluble.
Sol. in Chloroform	Insoluble.	Little soluble.	Soluble.
Soluble in Ether	Insoluble.	Little soluble.	Insoluble.

All were slowly precipitated from aqueous solutions by tannic acid and dissolved by excess.

Merck's crystallized U. S. P. and B. P. at once, and Merck's and L. & F.'s slowly. Digitalein, Merck, was not precipitated. All were precipitated by subacetate of lead.

Merck's crystallized digitin, also called "crystallized digitalin," was the only one precipitate from alcoholic solution by tannic acid. All were precipitated from alcoholic solution by alcoholic solution of PbA_2, Merck's amorphous and crystalline, and L. & F.'s slowly.

Alcohol and water are best solvents. Examination of B. P. and U. S. P. products showed that they contained tannic acid and extractive matter. Varying results can be obtained by tannic acid method, modified by quantity of tannin used, time in precipitation, thoroughness of decomposition of precipitate, etc.

The 1870 process does not direct a practical quantity of animal charcoal. It directs 0.432 Gm. of tannin for 50 Gm. of drug. It requires from 4.75 to 8 Gm.

The alcohol for digesting the dry lead and precipitate should be thrice the quantity ordered.

By U. S. P. method:

German leaf No. 1, Mr. Drake, 1.47.

German leaf No. 1, Mr. Brooks, 2.11.

Select digitalis No. 2, Mr. Drake, 1.38.

Select digitalis No. 2, Mr. Brooks, 4.1.

Powder from No. 1, Mr. Drake, 1.46.

Powder from No. 1, Mr. Brooks, 1.5.

Nativelle's process was tried, with negative results. The process of Mr. R. Palm (A. P. A. 1885, page 340), gave better results than many others, but this wants practice and skill. By this:

German digitalis No. 1 showed 0.326 per cent.

Select digitalis No. 2 showed 0.266 per cent.

Powder digitalis from No. 1 showed 0.014 per cent.

Messrs. Drake and Brooks are still engaged upon this work.

U. S. P. 1870 assay:

Moisten 50 Gm. of No. 60 powder digitalis with 64.5 per cent alcohol and allow to swell during twenty-four hours. Pack in a 16-ounce percolator and pour on enough 64.5 per cent alcohol to have used 110 Gm. in all. Start percolation, and then stop the process, allowing it to macerate four days.

Pour on diluted alcohol and percolate until 127.5 C.c. of percolate are obtained. Evaporate to a thin extract, add H_2O until thin enough to filter, 0.5 C.c. HA.IG purified animal charcoal, and allow to set twenty-four hours, warming and shaking occasionally.

This amount of charcoal is four times the amount called for in the official process, but it is necessary to obtain a light-colored product. The warming and shaking aid the charcoal in removing coloring matter.

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[*] Read before the American Pharmaceutical Association.

Filter and wash with a little H_2O, add NH_4OH to filtrate until nearly neutralized, and then a filtered solution of tannin in H_2O as long as a precipitate forms. This should be added gradually and not in excess. It takes a day or two for it to fully precipitate.

The amount of tannin required varies; the Pharmacopœia uses a solution of 0.432 Gm. dissolved in 8 C.c. H_2O, but in no instance tried did it require less than 4.75 Gm., and usually about 8 Gm.

Collect the tannin precipitate upon a small filter, wash with H_2O, and rub it in a mortar occasionally for several hours with half as much PbO as tannin used. This combines with the tannin and frees the glucoside. Dry in an oven at 50° C., and rub to a powder. Transfer to a small flask, mix it with 0.75 Gm. purified animal charcoal and 10 C.c. alcohol, and digest at 71° C. two hours, occasionally shaking.

The quantity of alcohol here used is three times the quantity given in the Pharmacopœia, but that quantity is not enough to moisten the precipitate. Filter through a small filter into a tared capsule, washing the filter with about 10 C.c. of alcohol.

Evaporate the filtrate and washings, dry at 50° C., powder, and wash with stronger ether until the washings are not colored. This removes coloring matter. Dry at 50° C and weigh. This gives the so-called amorphous digitalin. Its color is yellowish brown and it contains tannin. It was found very hard to remove the tannin with PbO, as one lot of this digitalin treated three times with PbO still contained it. On shaking this digitalin with $CHCl_3$ or ether, small crystals were separated, but in such small amounts as not to be estimated.

The product obtained by this process is so indefinite that no reliance can be placed upon its results. Using the same drug, the yield varied so widely each time, from 1.5 to 3.25 per cent, as to prove the valuelessness of the process. By using more or less PbO the yield can be brought to any desired amount.

The method given by Mr. R. Palm was tried, with quite good results. This is short and comparatively simple. The product under the microscope was found to be in cubical crystals. It was found to be soluble in $CHCl_3$ and alcohol, insoluble in ether and H_2O.

It also estimates the digitin and digitalin, but, with the small quantity used, was found impossible to separate these from an oily substance which contaminated them. The process as used is as follows:

Moisten 50 Gm. digitalis in No. 60 powder with H_2O, and macerate twenty-four hours. Percolate slowly with H_2O until 450 C.c. of percolate are obtained. This practically exhausts the drug. Add to the percolate a saturated solution of PbA_2 as long as a precipitate is formed, and then spirits of ammonia until no further precipitation takes place, and filter. The precipitate contains PbO and the glucosides.

Wash filter, and mix filter and precipitate with a little H_2O, and pass in H_2S to unite with the Pb. When the lead is all precipitated as a sulphide, filter, and the filtrate will contain the digitalein.

Dry the residue, which consists of filter paper, digitin, and digitalin, at 50° C., powder, and exhaust with $CHCl_3$ in a continuous extraction apparatus. Evaporate the $CHCl_3$ solution and obtain crystals of digitalin. Wash with ether to remove color. Dry at 50° C. and weigh.

Dry the residue left in exhaustion apparatus, and then extract with alcohol. Evaporate the alcoholic solution and obtain the digitin.

Mr. Palm's method was to decolorize the percolate with animal charcoal before precipitating with PbA_2, but on trying this it was found to require so much charcoal as to be liable to remove part of the glucosides.

The PbA_2 precipitates the coloring matter with the glucosides, and but little is removed by the $CHCl_3$ after combining the Pb with H_2S.

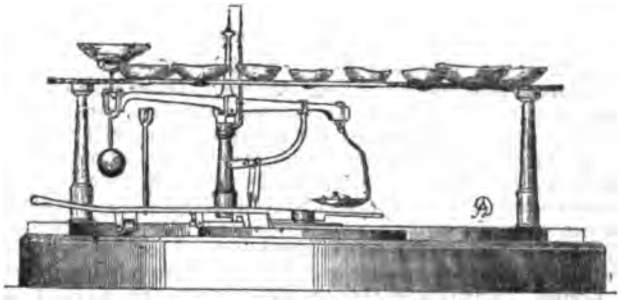
It seems as though a reliable method of assay could be based upon this process, if the products obtained are found to constitute the entire physiological activity of digitalis.

A series of such tests should be made with the different digitalins and their therapeutical value ascertained. It is hoped that some one will experiment in this line, as well as working out a good assay process.

A NEW DISPENSING BALANCE.

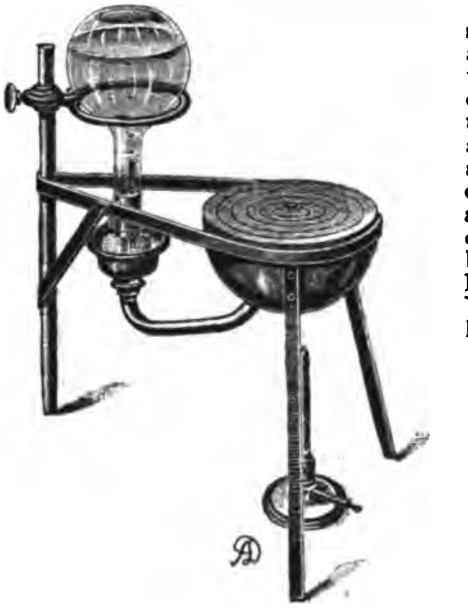
A reliable, accurate, and at the same time moderate-priced dispensing balance has long been a desideratum. This has now been supplied by Mr. Nithack, apothecary at Obernigk (Gov. District Breslau).

The main features of the construction of the balance are as follows: The pillar is revolvable in the socket, and provided with a screw by means of which it may be regulated. Above the screw there is a ring with depressions. By means of a spring a pin is held against the ring, which is thus caused to snap into the depressions when the ring is turned. In a semicircle around the pillar there is arranged a small wooden shelf containing 10 openings or notches at equal distances. By turning the pillar, whenever the pin snaps into a depression the scale pan will have arrived under one of the openings in the shelf, and the proper weight having been laid upon the other, it will lift off the shelf a light vessel intended to hold the powder to be weighed. The other scale pan is provided with a vessel of exactly equal weight. As soon as the proper amount of substance has been weighed into the vessel, equilibrium is restored and the vessel removed and emptied. The scale is then further turned so that the pan will arrive under the next notch, and so forth.



Nithack's Dispensing Balance.

This balance is simple, durable, and handy for use. An especial advantage is this, that it may also be used as a balance of precision. It is about to be put on the market by the well-known firm of Winkler & Jenke, of Berlin.



WATER BATH WITH CONSTANT LEVEL.

The firm of G. H. Muerrle, manufacturers of apparatus in Pforzheim, makes a water bath which is very useful for laboratories (see cut). As long as there is water left in the bottle, the level of the water in the bath will remain unaltered. The quantity of water in the bottle (about 800 Gm.) is sufficient to last for about five hours. If it is desired, a larger bottle may be substituted, so as to last proportionately longer. The water bath is simple in construction, strongly made, not dependent upon a system of water pipes, and therefore practicable under all circumstances. All parts are united together by a frame. The cost is stated to be very moderate.

A New Musk Substitute.

ANOTHER claimant for favors as a cheap substitute for musk made its appearance in trade some weeks ago. It is manufactured in Germany, and appears in the form of a white, crystalline powder in needle-shaped crystals a few millimeters in length. It is called tonquinol. It is said to be suited both to soap and perfume manufacture, to remain impervious to the influence of light for a prolonged period, and to be easily soluble. An alcoholic solution of 1 in 50 may be diluted with water to any extent, and herein it differs from musk Baur. Tonquinol is said to be soluble in most of the usual solvents, including fats, oils, ether, and chloroform. Its odor is not affected by boiling caustic potassa. The price is about 25 per cent lower than that of musk Baur.—*Chem. and Drugg.*

Phenacoll Hydrochlorate.

THE properties of this new antipyretic have been studied chemically by Dr. Herter (*Deutsch. med. Wochensch.* and *Therapist*) on eight cases, including four of rheumatic fever, and his results, stated generally, are that single doses of 8 grains reduce the temperature in a short time about 1° F., and the same dose given every hour until 24 grains are taken induces a fall of about 2° F., which lasts only a short time. Single doses of 15 grains effect a reduction of temperature amounting to 2° to 3° F. within a few hours (sometimes after one hour), which lasts about two hours. With 75 grains divided over the day, it is possible to produce almost complete apyrexia; it appears, however, that the effect upon the high evening temperature is more reliable and evident than that upon the high diurnal temperature. Shivering or perspiration does not supervene.

In severe febrile articular rheumatism the remedy, in daily doses of 75 grains, has a good effect upon the painful joint affections, but none on the temperature. These beneficial results can be obtained after the ordinary remedies, such as antipyrin, sodium salicylate, phenacetin, and antifebrin, have failed. The remedy has no disturbing influence upon the kidneys. It appears to be very rapidly excreted—at any rate, twelve hours after the suspension of the treatment, the iron reaction was no longer obtainable with the urine.—*Chem. and Drugg.*

Synthetic Quinine.

THE announcement that quinine has been prepared artificially, by synthesis, has been made several times during the last decade or two, and each time excited considerable flurry not only among professional chemists, but also in the quinine market. Unfortunately for the pretenders, the announcement turned out in each case to be premature, and only disappointment resulted where a golden harvest had been expected. At the present time, when the problem seems to have been partly solved, the discovery has no longer the least influence upon the market, though it cannot yet be foreseen what the results would be if the synthesis were really complete, that is, if the alkaloid could be built up from the elements.

Grimaux and Arnaud, two well-known chemists of Paris, have quite recently announced that they have succeeded in converting *cupreine*—the alkaloid nearly allied to quinine, and obtained from a very close relation to the genus Cinchona, namely, Remijia—into quinine (or possibly quinidine).

Cupreine is an alkaloid differing from quinine only by the group CH_2, viz.:

$C_{20}H_{24}N_2O_2$—Quinine.
$C_{19}H_{22}N_2O_2$—Cupreine.

Cupreine has the property of combining very readily with alkalies and other bases to form definite crystallizable compounds. As the editor of the *Chemist and Druggist*, from which paper we make this abstract, remarks, the last British Pharmacopœia makes use of this property of cupreine to detect it in commercial quinine. Yet, so far as the present market is concerned, the test is scarcely of any value, since cuprea bark has become a rare article and is no longer looked upon as one of the staple sources of quinine.

The sodium compound of cupreine is $C_{19}H_{21}NaN_2O_2$, Hesse was the first to establish this, and he conceived the idea that it might be possible to replace the sodium by a methyl group (CH_3), and thereby to produce quinine. But this turned out unsuccessful in his hands. In what precise manner Grimaux and Arnaud have succeeded in accomplishing this we fail to learn, but the process is said to proceed in two steps; viz., first, the production of sodium-cupreine, and, second, its reaction with methylene chloride, CH_3Cl. The result is stated to be a body identical with natural quinine, and, by substituting ethylene or higher derivatives for the methylene compound, compound substances analogous to quinine are produced which, it is believed, may possess interesting medical properties.

Unluckily for the discoverers, the starting point of their process is an alkaloid difficult to procure in our days. The synthesis, or rather partial synthesis, of quinine is, therefore, only a fact of scientific interest.

To Render Milk Free from Milk Sugar for Diabetic Patients.

FROM a lecture recently delivered by Dr. A. E. Wright, of London, on diabetes, we take the following paragraph, after *Chem. and Drugg.*

As to the assimilation of milk sugar, experience has not yet shown that it is innocuous, hence milk is often forbidden to diabetics. It is a great pity, considering its value, that this should be so merely because of the presence of the milk sugar, and by putting together a few facts that have been long known about milk Dr. Miller has been able to separate the proteid and fat of the milk from the sugar—in a word, to precipitate the casein and fat of the milk, to filter them off, allowing all the sugar to run away from them, and then to redissolve the washed precipitate in a solution of the normal salts of milk, to which a little alkali has been added. The process is a very simple one. Take a quantity of milk, dilute it with 3 or 4 volumes of water to which 1 to 2 parts per 1,000 of acetic acid have been added. This produces a precipitation of all the casein and fat of the milk. The precipitate is allowed to settle for a few minutes, and is then strained through a piece of calico. The precipitate is then washed and redissolved in a 1-per-cent solution of the following mixture of salts:

	Parts.
Sodium Chloride	11.5
Potassium Chloride	9.9
Mono-potassium Phosphate	18.8
Di-potassium Phosphate	10.8
Potassium Citrate	5.9
Di magnesium Phosphate	4.0
Magnesium Citrate	4.4
Di-calcium Phosphate	8.0
Tri-calcium Phosphate	9.6
Calcium Citrate	25.5
Calcium Oxide	5.5
Sodium Carbonate	40.0

A trace of saccharin may be used to sweeten the milk. The salt solution is best used at about blood temperature, and the casein and fat precipitate is to be mixed up with it, as in making cocoa, to the desired thickness. We obtain by this easy method a very fairly palatable and entirely sugarless milk. The precipitated casein and fat can also be dried without undergoing alteration, and then used for the preparation of the milk.

Preservation of Litmus Solutions.

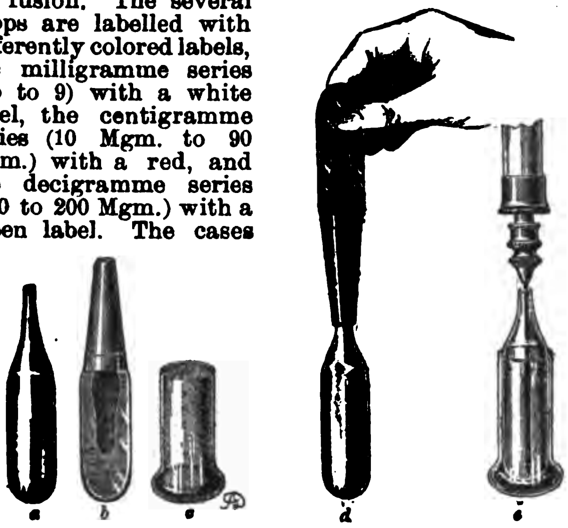
B. BALLI recommends to use carbolic acid for the preservation of litmus solutions. After having prepared a neutral sensitive solution, it is mixed with enough carbolic acid to make it possess the distinctive odor of the latter. But it is preferable first to remove the carbonic acid present in the solution by heat, and to add the carbolic afterwards, since the latter would be partly lost if heat were applied to the solution already containing it.

Salicylic acid had previously been recommended by the same author for this purpose. This is, however, objectionable for several reasons. In the first place, it is not so good a preservative, and, besides, it changes the coloring matter by turning it red, so that it has to be neutralized before being used.—*Chem. Zeit.*, 1891, 68.

PROPOSED METHOD OF DISPENSING TUBERCULIN.

Mr. F. Lutze (in *Pharm. Zeitung* No. 11) proposes a new method of putting up and dispensing Koch's lymph, or tuberculin, which does away with the pipette, measuring cylinder, water, alcohol, etc., etc., heretofore in use each time a particular dilution of the lymph had to be prepared.

He has caused to be prepared two small cases, containing—besides other articles presently to be mentioned—either a Koch syringe or a sterilizable hypodermic syringe with asbestos piston, according as the purchaser prefers the one or the other. Each case contains also 20 small vials (glass drops) holding varying quantities of Koch's lymph, running from 1 Mgm. to 200 Mgm., each dissolved in ⅕ C.c. of water. The glass drops are closed by fusion. The several drops are labelled with differently colored labels, the milligramme series (up to 9) with a white label, the centigramme series (10 Mgm. to 90 Mgm.) with a red, and the decigramme series (100 to 200 Mgm.) with a green label. The cases contain also an ample supply of alcohol for sterilizing, and two small appliances for facilitating the filling of the syringe. Fig. *a* represents one of the closed glass drops. Fig. *b* is a small metallic key for uniformly breaking off the points of the glass drops (shown in Fig. *d*). Fig. *c* is a small glass cylinder for supporting the glass drop when opened, after which the needle of the syringe is inserted into it and the latter filled, as shown in Fig. *e*. The point of the needle should not come into contact with the bottom of the drop, since the small amount of liquid eventually remaining in the drop has been made allowance for when the drop was charged with liquid. Only ⅕ C.c. must be withdrawn by the syringe.



Lutze's Mode of Dispensing Tuberculin.

SPECIFIC-GRAVITY BOTTLES FOR VISCID SUBSTANCES.

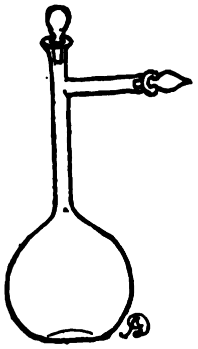
J. W. Bruehl communicates a method by which the specific gravity even of very viscid substances may be determined with perfect accuracy and great facility.

For this purpose he uses a specific-gravity bottle of the shape shown in the illustration. The neck of this flask is not quite as narrow as is usual in this form of apparatus. Both orifices are provided with differently shaped, accurately ground stoppers. Some distance below the lateral tube the neck of the flask is provided with a mark, up to which it is to be filled.

A pipette must also be provided, with an orifice as large as it is possible to employ with the particular liquid under investigation. The pipette must have a diameter permitting its being pushed down through the neck to the bottom of the flask without difficulty.

First the pipette is filled with the substance to be examined. For this purpose it is inserted, by the point, into the latter, and the upper end of the pipette connected with the filter or vacuum pump. If the viscid liquid or substance is hygroscopic, no direct connection with the vacuum pump must be made, but a chloride of calcium tube is to be interposed. Even the toughest liquid will thus be made to fill the pipette in a few minutes. Next a short piece of rubber tubing is slipped over the upper neck (bearing the round-headed stopper), and the pipette, which had previously been cleaned, pushed through the projecting part of the tubing, down through the neck, into the flask. There is no need of pushing it down so far that it will dip into the liquid.

Next the lateral neck is connected with the pump, and by exhausting the flask the contents of the pipette are in a short time discharged. The operation is repeated until sufficient liquid has been transferred to the flask to fill it to the mark at the proper temperature.



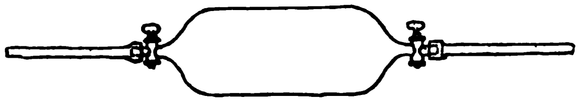
The exact adjustment to the mark is made by means of a pencil of rolled cigarette paper or of soft, porous wood. And the interior of the neck is best cleaned by means of rolled strips of muslin.

The experience of the author has shown that when a flask holding 10 C.c. was employed the specific gravity of a viscid liquid could be very exactly determined up to and including four decimals.

The author determined by this method the specific gravity of substances which were so viscid that they would not flow even from a flat capsule when this was turned over.—After *Berichte*, 1891, 182.

C. Scheibler described a very simple apparatus for the correct determination of the specific gravity of liquids, some twelve years ago, which apparatus appears to him to be even more practical than that recently proposed by J. W. Bruehl.

The apparatus is a sort of pipette, with ample bulb, drawn out at either side to a narrow tube carrying a stopcock close to the body, and the tube extending only a small distance beyond each stopcock. In addition, there are provided two pieces of glass tubing, ground so as to fit air-tight over the projecting ends of the pipette. The tubes are distinguished by letters or numbers, corresponding to similar ones engraved at either end of the pipette.



When the apparatus is used, the liquid is brought to the precise temperature at which its specific gravity is to be taken, the two detached glass tubes slipped over the ends of the pipette, the stopcocks opened, and the liquid made to ascend in the pipette by suction or aspiration. When it has risen above the upper stopcock, the latter is closed, the glass tubes are detached, and the short tubes projecting beyond the stopcocks cleaned. The apparatus is then weighed. If the weight of pure water required to fill the pipette at the same temperature is known, the specific gravity of any other liquid is easily calculated in the usual manner.

◆

Apyonin is the name of a substance of the methyl violet class which has been introduced as an antiseptic similar to Merck's pyoktanin. It is a yellow, crystalline powder, slightly soluble in cold and hot water, soluble in alcohol, and difficultly soluble in ether. Heated it sublimes, charring at a higher temperature, and burning without ash. The water solution is neutral, and gives a precipitate with caustic potash, which is soluble in alcohol. The plain solution produces colors on the addition of hydrochloric acid or peroxide of hydrogen solution. We are without particulars of the therapeutics of this substance, which is made by Petit, of Paris.—*Chem. and Drugg.*

New Source of Oxalic Acid.

A Prague chemist has devised a process for recovering oxalic acid from the waste liquors produced in manufacturing wood fibre by the sulphite process. It is found that 100 parts of waste liquor give an average of 12 parts of dry residue on evaporation, which contains 9.5 parts of organic and 2.5 parts of mineral matter. The filtrate, which contains chiefly lime salts besides the organic matters, is mixed with more than sufficient sulphuric acid to combine with the lime, the action being continued until all free and combined sulphurous acid is expelled, which may be condensed and utilized if desired. If any excess of sulphuric acid has been added, it is removed by carefully neutralizing with lime or chalk. After settling, the purified liquors are concentrated to about 40° B., sometimes to dryness. While still warm the mass is mixed with double its weight of a mixture of 2 parts of quicklime and 1 part of caustic soda. The mixture is heated, with constant stirring, in iron vessels to a temperature of above 100° C., whereby it is changed into oxalic acid, which combines with the bases, and is afterwards purified.—*Chem. and Drugg.*

A Method of Cutting Glass Tubes, Bottles, etc.

Mr. Wm. Thomson recently read some papers before the Society of Chemical Industry, one of which treated of the subject mentioned in the title.

The method consists in having some strips of thick blotting paper at hand, from a quarter to half an inch in width, and of different lengths. Two pieces of such paper are wetted and wrapped around the bottle, tube, or other vessel to be cut, once or oftener (once is sufficient). These pieces of paper, cut true, are wrapped around the vessel like two bands. They must not be placed too close together—say from a quarter to three-eighths of an inch apart for larger vessels, and rather less than a quarter of an inch apart for tubes of an inch in diameter.

When this is arranged, a fine flame about two or three inches long is allowed to play on the glass between the two pieces of wet paper, the vessel being slowly revolved and the point of the flame kept between the two papers. Within a minute, usually, the vessel separates with a clean cut along the line against which the flame played. The blotting paper can then be removed and put aside for use on other occasions.—After *Chem. and Drugg.*

Preparation of Pure Phosphoric Acid.

Powdered calcium phosphate is added gradually to a slight excess of commercial hydrofluoric acid diluted with an equal volume of water and contained in a leaden or platinum vessel. There is considerable development of heat, and the liquid must be thoroughly agitated. When the action moderates, the liquid is gently heated, water being added to make up for loss by evaporation. When the liquid becomes viscous, the excess of hydrogen fluoride begins to escape, and the mixture is then heated until the expulsion of the acid is complete.

The syrupy liquid thus obtained contains from 60 to 70 per cent of phosphoric anhydride in the form of orthophosphoric acid. With pure materials, the phosphoric acid obtained is very pure; if bones and ordinary acid have been used, the product must be heated to carbonize the organic matter, dissolved in water, filtered, and again evaporated. Pyrophosphoric and metaphosphoric acids can be obtained by evaporating at higher temperatures.

If hydrofluoric acid is added drop by drop to a large excess of powdered calcium phosphate, and the product is extracted with warm water, the solution, on evaporation, leaves a residue containing the various salts described by Erlenmeyer.—M. Nicolas, in *Compt. Rend.* and *J. Chem. Soc.*

Preparation of Pure, Concentrated Nitric Acid.

While preparing pure nitric acid for the purpose of revising its tables of specific gravity, Prof. Lunge and Mr. Rey encountered much difficulty in obtaining a highly concentrated, pure, and colorless acid.

As long as the nitric acid is comparatively weak, nitrogen tetroxide or hyponitric acid may be easily expelled by warming and passing a current of air or carbonic acid gas. A very strong acid, however, is so prone to decompose into nitrogen tetroxide, oxygen, and water that the ordinary method is insufficient. Passing a current of gas, as just mentioned, will not do, since this removes as much of nitric acid itself as of the impurities. The strongest acid which could thus be obtained contained 98.5 per cent.

The following method, however, was finally found to be effective:

A quantity of nitric acid, prepared and deprived of coloring impurities in the usual manner, and containing 98.7 per cent of absolute nitric acid, was put into a retort together with twice its volume of absolute sulphuric acid (H_2SO_4), and distilled *in vacuo*, the pressure being reduced to 20 Mm. by means of a water-jet pump. This was found to be the only way to prevent the acid from becoming yellow. The connection between the neck of the retort and the receiver was effected by wrapping with asbestos paper and an external coat of moulder's clay. Great care was taken to insure the absence of organic matter. The distillation took place at a temperature of 35° C. (in the retort), and the distillate was completely colorless. It contained 99.7 per cent of HNO_3, and was probably the strongest and purest nitric acid ever obtained.—After *Zeitsch. f. angew. Chem.*

Preparation of Hydrobromic Acid.

W. Feit and K. Kubierschky have made experiments with different methods of preparing hydrobromic acid, and have at last concluded that the process involving the use of potassium bromide and sulphuric acid is the most advantageous. They have evidently remained in ignorance of the papers published on the subject by Dr. Squibb, and for this reason had to go over the whole ground anew. Hence, their results are also somewhat different from those of Dr. Squibb, and for this reason should be put on record.

They found the best proportion to be as follows: 100 Gm. of potassium bromide and 150 C.c. of sulphuric acid of the specific gravity 1.410. This represents a molecular proportion of 1 part of the former to 2.6 parts of the latter.

The potassium bromide is introduced, coarsely powdered, into a retort, the acid added, and the whole slowly warmed, under repeated agitation, until the salt is dissolved. Distillation is then commenced. The liquid in the retort has a faint yellowish color, which is not, however, due to free bromine, but is, perhaps, caused by organic impurities. At 126° to 127° C. the liquid begins to boil; afterwards the boiling point rises gradually to 150° C. During this time almost the whole of the hydrobromic acid passes over. From 150° up to 200° C. the boiling point rises rapidly and but little liquid distils over. This portion contains a trace of sulphuric acid which is carried over mechanically. Between 200° and 250° C. only very little hydrobromic acid passes over, and that which passes contains more sulphuric acid than the preceding fraction.

Distilled in the described manner, 100 Gm. of potassium bromide yielded 119 C.c. of hydrobromic acid of the specific gravity 1.385, or 165 Gm. of acid containing 40.5 per cent of absolute acid. That is, the 100 Gm. of KBr yielded actually 66.8 Gm. of absolute acid instead of the theoretical 68.1 Gm. No separation of potassium sulphate takes place during the whole operation. The residue in the retort still contains about 1 Gm. of potassium bromide.

In order to free the hydrobromic acid thus obtained from the small amount of accompanying sulphuric acid, and to concentrate it at the same time, it is subjected to fractional distillation. At first a dilute acid passes over, and afterwards an acid having the permanent boiling point of 126° C. This contains 48 per cent of absolute hydrobromic acid, and has the specific gravity 1.490. It is absolutely colorless, and free from sulphuric or sulphurous acid, as well as from free bromine.

If the potassium bromide used in this process contained any bromate, bromine is at first liberated and passes over. In this case the receiver is changed as soon as a colorless distillate passes. The acid is then treated with solution of sodium hyposulphite in drops until it is colorless, and finally rectified like the other.—*Chem. Zeit.*, 1891, 444.

The Absorption of Fusel Oil by Wood, etc.

A PAPER on "The Chemistry of Whiskey," recently read by Mr. A. H. Allen before the Society of Chemical Industry, sheds new light upon the well-known fact that whiskey or other distilled spirits kept in wood will gradually lose their fusel oil, become riper and mellower, and develop a more fruity and pleasant odor and taste.

Mr. Allen found that the cork of a 2-gallon jar of whiskey kept on its side absorbed as much fusel oil as was contained in 6 ounces of the whiskey. He therefore took some of the spirit, and placed cork and oak shavings into separate portions, and a distillate of the shavings afterward showed that they had absorbed fusel oil equivalent to 11 per cent of what was in the whiskey. Specimens of these were shown. This matter has direct connection with the custom of grogging whiskey casks. A certain amount of the spirit is always in the wood, and it is taken out by pouring water into the cask and afterward distilling the aqueous fluid. A sample of grog from a cask in which whiskey had been kept for eighteen years was obtained, as well as the first and final distillates from the grog. The grog itself contained 291 grains of amylic alcohol per gallon. The first distillate from the grog had a strong odor of aldehyde and contained 12 per cent of acetic ether.

The last distillate contained no less than 803 grains of amylic alcohol per gallon and was also rich in furfurol. It may be noted that samples of Scotch whiskey contained 89 grains and Irish whiskey 78 grains of amylic alcohol per gallon. Now, these results clearly show that in the cask there is a disappearance of amylic alcohol due to absorption, and that etherification does take place by ageing is shown by the first distillate containing aldehyde and acetic ether. Of course, it is also probable that when the aldehyde is oxidized it is converted into acetal, which is a very fragrant body.—After *Journ. Soc. Chem. Ind.*

Aristol.

SOME question has been raised recently as to the purity of the substances met with in commerce as representatives of the compound introduced as an antiseptic first under the name "annidaline" and then as "aristol."

It will be remembered that aristol has been described as being obtained by treating an aqueous solution of iodine in potassium iodide with thymol in caustic soda solution. The impurities that it might be expected to contain, therefore, would be free iodine, alkali, or alkaline iodide. Mr. Reuter reports (*Apoth.-Zeit.*, January 28th, p. 61) the examination of two samples, one of older date than the other. Both, upon being skaken with water, gave a solution which was perfectly neutral, but which upon evaporation left a residue of alkaline iodide, amounting in one case to 1.6 per cent. Upon treating the samples with ether, in which pure aristol is perfectly soluble with a yellow, not a brown color, a residue was left from the older specimen amounting to 4.8 per cent, and from the other to 1.6 per cent, this residue containing much alkaline iodide and possibly an insoluble organic iodine compound. Upon shaking the samples with 1 per cent potassium iodide solution, the filtrate from the older one gave with starch paste an intense coloration, showing the presence of free iodine, but the filtrate from the other remained free from color.

It seems probable, therefore, that the aristol of recent manufacture is less contaminated with free iodine than the earlier specimens, but that it still contains alkaline iodide.

In respect to purification, Herr Reuter states that if a solution of aristol in cold glacial acetic acid be treated with water and the precipitate thoroughly washed and dried at 60° C., a faint yellowish product is obtained that dissolves clear and without residue in ether and contains no free iodine. But the question arises whether an absolutely pure preparation is advantageous, for it would appear that pure aristol is much more stable than has been supposed, and consequently less likely to act as a bactericide than a preparation rendered unstable by the presence of more or less free iodine or alkaline iodide. This might account for some of the contradictory experiences with this substance that have been reported, as, for instance, that of Prof. Neisser, in whose hands aristol proved quite inactive, except in some cases of lupus, where it was applied to patches that had been treated previously with a caustic.—*Pharm. Journ.*

APPARATUS FOR THE MANUFACTURE OF LIQUID CARBONIC ACID.

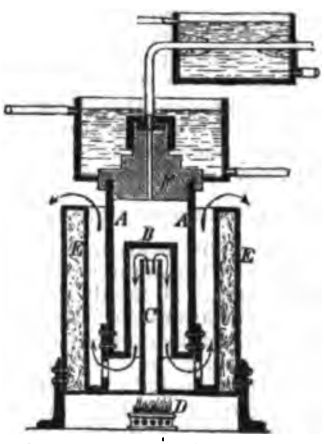
THE liquefied carbonic acid gas in this process is prepared by heating bicarbonate of sodium under pressure.

The heating is conducted in a strong retort having the form shown in A (see figure), which permits the utmost heat effect. The heated gases arising from the furnace D pass up through the tube C, descend along the inner walls of the retort, and finally pass out through E. The retort is charged with dry bicarbonate of sodium, and the latter is split, by heat, into carbonate of sodium, water, and carbonic acid gas:

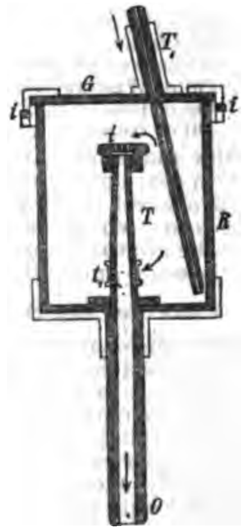
$$\underset{\substack{\text{sodium}\\\text{bicarbonate}}}{(NaHCO_3)_2} = \underset{\substack{\text{sodium}\\\text{carbonate}}}{Na_2CO_3} + \underset{\text{water}}{H_2O} + \underset{\substack{\text{carbonic}\\\text{acid gas}}}{CO_2}$$

The mixture of water vapor and gas passes out through F, and then enters a condenser, where the steam becomes condensed, while the gas passes on, first traversing a wash apparatus, a desiccator, and is finally condensed, by its own pressure, in a condensing cylinder properly cooled. This cylinder is suspended from a scale beam, so that its contents may at all times be readily ascertained by proper counterpoise.

This apparatus is patented in Germany by H. Beins & J. F. Beins, of Gröningen.



Beins' Carbonic Acid Apparatus.



Ducretet's Carbonic Acid Apparatus.

PREPARATION OF SOLID CARBONIC ACID.

IN connection with the preceding, or any other apparatus yielding liquid carbonic acid gas, the following apparatus designed by Ducretet may be used for producing the solidified acid.

R is a cylinder made of hard rubber, having a cover, G, which may be closed by a bayonet clamp, *i*. The tube T, which passes through the cover, reaches nearly to the bottom of the cylinder. When the liquefied acid is admitted to the cylinder through this tube, it is projected against the bottom and most of it solidified, while the gaseous portion and the displaced air are driven from the cylinder through the tube O, the inner orifice of which is covered by a piece of fine-meshed wire gauze.

While the liquid carbonic acid gas is being projected against the interior wall of the rubber cylinder, so much electricity is produced that a constant spark of about 1 Cm. in length may be maintained between the metallic coverings of the entrance tube T and of the exit tube O.—*Dingl. Polyt. Journ.*

Obtaining Oxygen from the Air.

A NEW process has been patented for obtaining oxygen from the air. At a red heat a mixture of lead monoxide and an alkaline earth will absorb oxygen, with the formation of lead dioxide and a plumbate of the alkaline earth employed; and if carbonic acid be then passed over the mass, the absorbed oxygen will be driven off. The applicant proposes to apply this reaction to the recovery of oxygen from the atmosphere. He passes air over a heated mixture of lead monoxide and lime, thereby absorbing the oxygen and allowing the nitrogen to pass off: $2CaO+PbO+O=Ca_2PbO_4$. When the mixture has been saturated with oxygen, the air is turned off. Carbonic acid is introduced, expelling the oxygen, and itself combining with the remaining calcium oxide: $Ca_2PbO_4+2CO_2=2CaCO_3+PbO+O$. The reaction is so rapid that at first only pure oxygen is evolved. Toward the close of the operation some carbonic acid is disengaged, but this can readily be removed by a suitable absorbing agent, such as lime or sodium carbonate. The mixture of calcium carbonate and lead monoxide now remaining in the retort is immediately treated (at a red heat) with air, or, to hasten the expulsion of the carbonic acid, with steam and air. The same reaction (the absorption of oxygen) is thus again brought about; and the process may be repeated at pleasure. It is also possible to recover the carbonic acid used in the process. Other metallic oxides—the lower oxides of manganese, for example—may be employed instead of lead monoxide. The oxygen of the pure dioxide (PbO_2, or MnO_2) and of the corresponding metallic peroxides are also very easily driven off by carbonic acid.—*Scient. Am. Suppl.*

Salicylic-acid Shampoo.

Salicylic Acid..................	25 Gm. or 380 grs.
Glycerin...	50 " " 760 grs.
Alcohol of 68 per cent..............	950 " " 30½ troy oz.
Oil of Wintergreen........ ...	5 drops.
Oil of Rose................. ...	1 drop.
Oil of Neroli....................	1 drop.

Mix and filter. Directions: Wash the head well with warm soapsuds, then with pure warm water, and dry it with a towel. Then pour two tablespoonfuls of the shampoo into a wineglass, fill this with warm water, and apply the mixture thoroughly, by means of a small sponge, to the scalp and hair.—E. DIETERICH in *Pharm. Centralh.*

Fluorides and Hydrofluoric Acid as Antiseptics.

THE efficiency of hydrofluoric acid as an antiseptic and antiferment has been recognized for some time, and is being more and more appreciated. It is now being employed by many brewers and distillers for the purpose of destroying or preventing the development of germs which interfere with the normal alcoholic fermentation. Curiously enough, the acid (used in judicious quantity) will not only not hinder the growth of the normal alcoholic ferment germ, but will even promote it.

There is, however, one drawback connected with the use of the free acid, as is well known. Owing to the affinity of the acid for silica, it can only be carried or stored in certain metallic or in caoutchouc or rubber containers. For this reason experiments have for some time been in progress to ascertain whether the fluorides of sodium or of allied bases could not be employed. Of course, it was to be expected that neutral fluorides, *per se*, would be devoid of any antiseptic properties. That an acid, expected to act as an antiseptic, must be in a free state, has long been known, a familiar example being salicylic acid. But it has been discovered by Effront that certain organic acids, such as acetic, butyric, lactic, and oxalic, have the power of decomposing neutral fluorides, and setting hydrofluoric acid free. This is easily shown by the fact that a solution of a neutral fluoride, when acidulated by such an acid, will etch glass. Placing the above-mentioned acids in the order of their greatest effect, the first will be oxalic, and the others will be, successively, lactic, acetic, and butyric acids.

The peculiar effect of the influence of hydrofluoric acid upon the process of alcoholic fermentation—which no doubt consists mainly in suppressing fermentative processes which might arise from the presence of bacteria—is seen, for instance, from this, that when a mash treated with hydrofluoric acid is filtered it will at once yield a clear filtrate. It will also give a much purer suboxide of copper with Fehling's solution, and a smaller precipitate with subacetate of lead. Moreover, it is asserted by competent authorities that the odor and taste of the distilled product are much nearer to what an absolutely pure distillate would be.

Manufacture of Salicylic Acid.

Kolbe's original method of preparing salicylic acid synthetically (by the action of carbonic acid upon phenol in presence of sodium) was modified by him in 1874 in the following manner, which rendered its execution on a large scale possible and profitable: A solution of phenol in a quantity of solution of soda sufficient for saturation was evaporated to dryness, and the resulting phenol-sodium (C_6H_5ONa) heated in an atmosphere of carbonic acid gas, at a temperature of 220°-250° C., until no more phenol passed over. The product of the reaction, disodium salicylate, was then dissolved in water, the solution decomposed by hydrochloric acid, and the crude acid purified by recrystallization, or by distillation with superheated steam. In this process one-half of the phenol is recovered unchanged. Schmitt subsequently ascertained that the whole of the phenol may be converted in one operation into salicylic acid by acting with carbonic acid gas upon phenol-sodium at the ordinary temperature and then heating the resulting phenyl-sodium carbonate in closed vessels, when it is completely changed to salicylate of sodium. The modus operandi is as follows: Dry phenol-sodium is mixed, under cooling, with a little more than the calculated quantity of liquid carbonic acid, and the whole is then heated during several hours in a closed vessel at a temperature of 120°-140° C. The resulting mono-sodium salicylate is decomposed with hydrochloric acid, and the salicylic acid thus separated purified by recrystallization. The reactions are as follows:

$$\underset{\text{phenol}}{C_6H_5OH} + \underset{\text{soda}}{NaOH} = \underset{\text{phenol-sodium}}{C_6H_5ONa} + \underset{\text{water}}{H_2O}$$

$$\underset{\text{phenol-sodium}}{C_6H_5ONa} + \underset{\text{carb. acid}}{CO_2} = \underset{\text{phenyl-sod. carb.}}{C_6H_5OCOONa}$$

$$\underset{\text{phenyl-sod. carb.}}{C_6H_5OCOONa\text{ (heated)}} = \underset{\text{sodium salicylate}}{C_6H_4OHCOONa}$$

which last salt is then decomposed by acid, yielding $C_6H_4OH.COOH$, or $C_7H_6O_3$, salicylic acid.

Bettendorff's Arsenic Test.

H. WARNECKE points out that the solution of stannous chloride prescribed by the last German Pharmacopœia, and used, among others, as a test for arsenic, is not of the proper character to answer for the latter purpose. The Pharmacopœia directs it to be prepared by triturating 5 parts of stannous chloride (crystals) with 1 part of hydrochloric acid to a paste, and saturating this completely with dry hydrochloric acid gas. The resulting solution is allowed to deposit and then is filtered through asbestos.

Warnecke finds that the test is satisfactory only when concentrated hydrochloric acid is used, and only as much stannous chloride as is required for the reduction of the arsenic which may be present.

He finds that by modifying the test as follows, satisfactory results are obtained:

Make a solution of 1 part of crystallized stannous chloride in 2 parts of strong, fuming hydrochloric acid (spec. grav. 1.190 to 1.200). For every 1 C.c. or 1 Gm. of the substance to be tested use 5 C.c. of stannous solution. In most cases a gentle heat may be employed with advantage. Only the appearance of a *brown color* or of a *brown precipitate* is evidence of the presence of arsenic, but not any other color.—After *Pharm. Zeit.*, 1891, 167.

[*Note by Ed. Amer. Drugg.*—Bettendorff's test has recently been studied by a well-known chemist of this country, who has succeeded in eliminating all features of uncertainty. It is expected that he will shortly publish the method.]

On the Presence of Boracic Acid in Caustic Alkalies.

Several samples of caustic alkalies from Schuchardt, Marquart, and Trommsdorf, described as "chemically pure," were found to contain boracic acid. Meissl's method for determining boracic acid in milk was employed; *i.e.*, the alkalies were just saturated with acid in a platinum dish, the salts moistened with a little dilute hydrochloric acid (1:100), a few drops of tincture of turmeric added, and then evaporated to dryness. Traces of boric acid caused a cherry or cinnabar-red coloration. The flame test was also used. From the degree and delicacy of the reaction, it may be assumed that the quantity of boracic acid exceeded 0.1 per cent.

This should be taken into account in quantitative determinations of boracic acid, as caustic potash is frequently employed in them.—*Journ. Anal. Chem.*

Detection and Estimation of Boracic Acid in Milk, Cream, etc.

The following paper was read at a meeting of the Society of Public Analysts (London) by Charles E. Cassal:

The presence of boracic acid and borates in milk and cream can be detected without difficulty by applying the turmeric test, and the alcohol-flame test to the ash.

The ash obtained in the course of the ordinary analysis is treated with a little water and made just acid with hydrochloric acid.

Numbered slips of turmeric paper are moistened halfway with the solution, and are preferably arranged on a glass plate and dried in the air bath; or a few drops of turmeric solution are added to the acidified ash, and evaporated to dryness in a porcelain capsule, the latter method being an exceedingly delicate one. On moistening with an alkali, the dark blue color is obtained on the paper or porcelain when boracic acid is present. A dark blue solution is obtained when water and an alkali are added to the residue in the porcelain capsule, but the color disappears with great rapidity, and I have hitherto been unsuccessful in determining the conditions which would render it permanent, or sufficiently permanent to admit of its being applied for purposes of estimation.

The only method which up to the present I have found to be applicable for the estimation of boracic acid in milk and cream is a modification of that described by F. A. Gooch in the *American Chemical Journal*, and which depends on the fact that free boracic acid can be completely separated from fixed substances by repeated distillation with methyl alcohol. I have repeated Mr. Gooch's experiments, and am able to confirm his results generally. He states that methyl alcohol, ethyl alcohol, and water are effective for the purpose of separation, in the order named, and this I have found to be the case; but the volatilization of even 0.2 Gm. of anhydrous boric acid by the use of ethyl alcohol is so tedious that it is not advisable to use this substance for the purpose

Complete volatilization of boric acid by the use of successive charges of methyl alcohol is easily and rapidly effected.

I have found it best to use successive charges of 5 C.c. rather than 10 C.c. or more as used by Mr. Gooch. I am not able to confirm his statement that in the presence of water methyl alcohol is not equally effective.

My own experiments show that crystallized boracic acid is volatilized more rapidly than anhydrous boric acid, and that the addition of a few drops of water to the latter before evaporation or distillation with methyl alcohol promotes rather than retards the volatilization of the acid.

The method as now applied by me for the estimation of the acid in milk and cream is as follows:

In the case of cream about 50 Gm., and in that of milk about 100 Gm., of the sample are rendered alkaline with caustic soda, evaporated to dryness, and incinerated. The ash, which need not, of course, be burnt white, is ground up and transferred, by washing with a little methyl alcohol and a few drops of water, to a conical flask of from 200 C.c. to 300 C.c. capacity, provided with a doubly perforated rubber cork, through which pass a stopcock funnel tube and a delivery tube. The flask is attached to an ordinary condenser by means of a flexible joint in such a way as to admit of its being shaken round occasionally, and is placed in an oil bath.

The mixture in the flask is acidified with acetic acid, and 5 C.c. of methyl alcohol are run in from the funnel tube and distilled. The distillate is received in a weighed amount of pure lime (ignited to constant weight). About 1 Gm. is a convenient quantity. The lime is contained in a platinum dish capable of holding about 70 C.c., which is placed in a glass receiver. This receiver may be made from a ground-edged glass vessel, covered with a perforated ground-glass plate The end of the condenser tube passes through a grooved or loosely fitting cork in the perforation of the plate, and terminates just above the lime in the platinum dish.

Distillation with 5 C.c. of methyl alcohol is repeated several times, ten such treatments being ample for all likely cases. Fewer are generally quite sufficient. A gelatinous mixture is obtained in the platinum dish. It is well stirred and allowed to stand for some minutes. It is then evaporated in an oil bath, and is finally heated over the blowpipe flame to constant weight. The increase of weight is boric acid, and the error does not in any case amount to more than 1 Mgm. plus when dealing with from 0.1 to 0.25 or 0.3 Gm. of anhydrous boric acid. To make sure that the acid has been completely volatilized, the residues in the distillation flasks are tested with turmeric paper. The few drops of water added before the first distillation greatly increase the rapidity of the removal of the boric acid. The use of nitric acid is not advisable for the purpose of freeing the boric acid in the flask. Acetic acid presents no difficulties and is quite effective.—*The Analyst*, December.

Testing of Hydrometers.

The German Government, through its Bureau of Standard Weights and Measures ("Kaiserliche Normalaichungs-Kommission"), is about to undertake the testing and certification of hydrometers or areometers which may be submitted for this purpose, of course for a certain fee (which will be moderate). For the present the tests will be confined to the use of hydrometers in certain specified liquids, since it involves too much work to determine the curve of capillarity for a great variety of liquids into which the instruments may be placed.

Precaution in Carbonic Acid Determinations.

In the determination of carbonic acid in carbonates by finding the loss of weight after driving the gas out of a known weight of the salt, it is customary to use either sulphuric or hydrochloric acid for decomposing the carbonate, and sulphuric acid for drying the gas. The apparatus, of which there are many forms, is well known. The most simple form is this: The carbonate to be decomposed is put into a small flask with a little water, and this connected by glass tubing with a second flask containing sulphuric acid; the whole, as thus connected, is then weighed. A little of the sulphuric acid is then aspirated over into the first flask, and the generated gas then makes its way through the second glass tube into the first flask, where it has to pass through the sulphuric acid, and escapes in a dry state.

When hydrochloric acid is to be used for decomposing the carbonate, which is preferable in the case of the lime salt or others forming insoluble sulphates, a special receptacle must be provided for this acid, since the sulphuric acid in the other flask cannot well be dispensed with, it being required as a drying agent. A stoppered globe funnel with narrow tube forms a good receptacle. By gently opening the stopcock of the funnel, acid will gradually reach the carbonate until it is completely decomposed.

Borntraeger found some time ago (*Zeitsch. anal. Chem.*, 1890, 141) that when hydrochloric acid is used for decomposing carbonates, losses are occasionally incurred by the escape of vapors of hydrochloric acid or chlorine which the sulphuric acid sometimes fails to retain. For this reason he prefers nitric acid as a decomposing agent, since all nitrogen compounds which may arise from a decomposition of the nitric acid will be retained by the sulphuric acid.

The Search for Mercury in Toxicological Examinations.

M. T. Lecco has found that the usual method used for destroying organic matter in toxicological examinations—viz., heating the organic organs, etc., with hydrochloric acid and potassium chlorate—does not, as has been supposed, also cause solution of any mercury which may be present, except under certain precautions.

A stomach in which the presence of metallic mercury could be plainly recognized by the naked eye was treated with potassium chlorate and hydrochloric acid in the usual manner until all organic matter was destroyed. The resulting solution, after being deprived of excess of interfering matters, was tested for mercury, but not a trace was found to be present or to have entered into solution. In fact, the mercury was found, in globules, in the residue which had remained behind. The only way by which complete solution of the mercury can be accomplished is to continue the action of the acid and the chlorate, with gentle heat and repeated stirring, for several hours.—After *Berichte*, 1891, 928.

Melting Points of Quinine, Cinchonidine, and their Isomers.

O. Hesse has repeated his determinations of the melting points of these substances (*Ann.*, 135, 327; 176, 207), using Roth's apparatus (*Ber.*, 19, 1970).

Anhydrous quinine, obtained by drying the trihydrate over sulphuric acid and heating to 115° or 120°, melts at 171.2°-172°; when obtained by heating the benzene compound $C_{20}H_{24}N_2O_2.C_6H_6$ to 120°, it melts at 171.6°-172°. The anhydrous isomeride formed by the prolonged heating of solutions of quinine in dilute alcohol, etc., at 30°, and which may be termed quinine anhydride, or homoquinine, melts at 174.4°-175°. It is reconverted into quinine by the prolonged action of dilute sulphuric acid.

Cinchonidine melts at 202°-202.8°, and is readily converted into its isomeride homocinchonidine, which melts at 207°-208.2°. The latter may be reconverted into cinchonidine by repeated crystallization from dilute sulphuric acid (*Ann.*, 205, 194).

The beta-cinchonidine obtained by the author by the action of hydrochloric acid on cinchonidine (*Ann.*, 205, 327) melts at 206°-207°, but acquires a brown coloration. In an acid solution it polarizes more strongly than homocinchonidine; the sulphate resembles the homocinchonidine salt, and may be similarly converted into the cinchonidine compound, but it is more soluble in water.

It may, therefore, be assumed that the first product of the action of hydrochloric acid (sp. gr. 1.125) upon cinchonidine at 140° consists of homocinchonidine, which is further partially converted into apocinchonidine.

In the presence of concentrated sulphuric acid, only the first change takes place.—After *Annal.*, in *J. Soc. Chem. Ind.*

Recent Official Tests for Quinine Sulphate.

The last German Pharmacopœia (published in 1890) gives the following tests for other cinchona alkaloids:

Upon 2 Gm. of sulphate of quinine, completely effloresced at 40° to 50° C., and contained in a test tube, pour 20 Gm. of distilled water, and place the whole during half an hour into a water bath warmed to 60° to 65° C., frequently shaking. Then transfer the tube into water of 15° C., and keep it there during two hours, frequently agitating. Then filter through a filter made of the best paper, 7 Cm. in diameter, transfer 5 C.c. of the filtrate (at 15° C.) into a dry test tube, and gradually mix it with water of ammonia (specific gravity 0.960) until the precipitate first produced is redissolved. Not more than 4 C.c. of water of ammonia should be used for this purpose.

Regarding this test, which is that proposed by Kerner and Weller, one of the commentaries on the new German Pharmacopœia makes the following comments ("Kommentar zum Arzneibuch f. d. Deutsche Reich.," von Hager, Fischer u. Hartwich, page 459):

The maximum consumption of ammonia, viz., 4 C.c., which the test permits, is so close that it justifies the conclusion that the authors of the work intended to recognize as official only a perfectly pure sulphate of quinine, although we are inclined to doubt the actual attainment of this object in view of the facts presently to be mentioned.

Chemically pure sulphate of quinine, which is prepared from the bisulphate after the latter has been several times recrystallized, when subjected to this test yields a filtrate, of which *the first five* cubic centimeters require from 3.3 to 3.8 C.c. of ammonia, *the amount depending upon the nature of the filter paper used.* The second 5 C.c. of filtrate will require from 3.8 to 4.1 C.c. of ammonia. What is the reason of this? Simply that sulphate of quinine is absorbed by filter paper from aqueous solution, in varying ratio, according to the thickness or filtering capacity of the filter paper. From the second 5 C.c. which pass through the filter, the paper, which is already saturated by quinine abstracted from the first 5 C.c., will take up less of the alkaloid. Hence more ammonia will be required for the second 5 C.c., and the actual amount will often be more than the limit allowed by the Pharmacopœia, which throws a doubt upon the latter.

Schaefer, who was the first to point this out, showed that it is possible to deprive a saturated solution of quinine sulphate entirely of the alkaloid by passing it through several layers of filter paper, so much so that a drop of ammonia, when added to the filtrate, will not even produce a cloudiness. Hence Schaefer recommends to use glass wool in this case as filtering medium, since this has no selective tendency towards alkaloidal salts.

If glass wool is substituted for filtering paper, the first 5 C.c. of filtrate obtained in the official test will require from 4 to 4.3 C.c. of ammonia. The variation in the amount of the latter is probably due to the occasional partial supersaturation of the solution, remaining after the latter has cooled.

It would have been preferable had the Pharmacopœia directed filtration through glass wool, and directed 4.5 C.c. of ammonia as upper limit.

Great care must be taken that the temperature of 15° C. is maintained during the filtration (and addition of ammonia). An elevation of 1° C. may cause an increase in the consumption of ammonia amounting to 0.2 and 0.3 C.c.

While the test is subject to circumstances sometimes requiring a considerable increase in ammonia, it is, on the other hand, rather uncertain when only small quantities of cinchonidine are present. A few percents of the total cinchonidine which had crystallized, together with the quinine salt, are as good as passed over by the test.

Nevertheless, if the directions are carefully observed, it is more sharp than that of the last Pharmacopœia.

The Use of Sodium Sulphide in Place of Hydrosulphuric Acid Solution.

Dr. Hermann Kunz recommends the use of sodium monosulphide, in crystals, $Na_2S.9H_2O$, as a substitute for hydrosulphuric acid solution, particularly when the employment of the latter is inconvenient. It happens frequently that a test is to be made when none of the solution is ready at hand; or tests are to be made at a moment's notice during a journey or expedition.

For use the author recommends to prepare a 50-per-cent solution of the salt in water. Each cubic centimeter of this corresponds to about 40 C.c. of hydrosulphuric acid gas. In place of an aqueous an alcoholic solution may be prepared, when this is preferable.

In applying the reagent, 1 drop of the solution is diluted with about 1 C.c. of distilled water, in a test tube, and the liquid to be tested added to it. If the sulphide to be precipitated forms only in a neutral or alkaline solution, and it should not at once make its appearance, it is only necessary to add a few more drops of the reagent, which has itself an alkaline reaction. If the precipitation can take place only in an acid solution, the liquid to be tested is to be previously acidulated with a few drops of acetic acid. In the case of arsenic the liquid must be acidulated with hydrochloric acid, and the appearance of the precipitate may be hastened, as usual, by placing the test tube into hot water.

While the above-described reagent thus renders valuable service in qualitative work, it is not so universally applicable for quantitative work, since it introduces fixed bases which would often interfere with the object of the analysis. But when the object is one where the introduction of sodium or the presence of a little free sulphur, perhaps, is of no account, it may be used—for instance, when lead is to be tested for and to be separated as sulphide.—After *Pharm. Centralh.*

Redetermination of the Specific Gravity of Nitric Acid of Varying Strength.

Kolb's table, which has usually been followed up to the present time, has repeatedly been criticised as being incorrect, particularly in its upper values. Even the method used by Kolb in determining the strength of any sample of the acid—which consists in saturating the whole contents of the specific-gravity bottle with an excess of pure calcium carbonate, and weighing the undissolved portion—is now recognized as not furnishing absolutely reliable data. In view of these facts, and having already revised the corresponding tables of sulphuric and hydrochloric acids, Prof. Lunge, this time in conjunction with Mr. H. Rey, redetermined the curve of specific gravity relating to percentage of absolute acid, and from this constructed a new table, which will, no doubt, hereafter be followed until perhaps a still more exact determination may be made.

We give a selection of figures, such as will be useful in practice, from Lunge's new table:

Specific gravity at 15° C.*	100 parts by weight contain		1 liter contains in kilos,
	N_2O_5.	HNO_3.	HNO_3.
1.000	0.08	0.10	0.001
1.005	0.85	1.00	0 010
1.010	1.62	1.90	0.019
1.025	3.94	4.60	0.047
1.050	7.71	8.99	0.094
1.075	11.27	13.15	0.141
1.100	14.67	17.11	0.188
1.125	18.00	21.00	0.236
1.150	21.29	24.84	0.286
1.175	24.54	28.63	0.336
1.200	27.74	32.36	0.388
1.225	30.88	36.03	0.441
1.250	34.13	39.82	0.498
1.275	37.41	43.64	0.556
1.300	40.71	47.49	0.617
1.325	44.17	51.53	0.683
1.350	47.82	55.79	0.753
1.375	51.69	60.30	0.829
1.400	55.97	65.30	0.914
1.405	56.92	66.40	0.933
1.410	57.86	67.50	0.952
1.415	58.83	68.63	0.971
1.420	59.83	69.80	0.991
1.425	60.84	70.98	1.011
1.430	61.86	72.17	1.032
1.435	62.91	73.39	1.053
1.440	64.01	74.68	1.075
1.450	66.24	77.28	1.121
1.475	72.39	84.45	1.246
1.500	80.65	94.09	1.411
1.520	85.44	99.67	1.515

The original table of Lunge's is much more in detail than the above. We have selected only those figures which are of special importance in practice. Kolb's table does not give the values for 1.420 (specific gravity of nitric acid, according to the U. S. Pharm. of 1880), but contains those for 1.412 and 1.426, from which the value for 1.420 was calculated. It was put into the text of the U. S. Ph. (page 17) thus: A liquid composed of 69.4 per cent of absolute nitric acid and 30.6 per cent of water. According to Lunge's table, these values ought to be 69.8 and 30.2, respectively. The fact that Lunge's figures are calculated as having been weighed *in vacuo* does not affect the practical use of the table.—After *Zeitsch. f. angew. Chemie.*

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* Compared with water at 4° C., and calculated as being weighed in vacuo.

Volumetric Assay of Potassium Permanganate, Peroxide of Hydrogen, and Chloride of Lime.

G. Lunge, in a recent paper (*J. Soc. Chem. Ind.*, 9, 21), only treats of those of the numerous uses of the nitrometer in which hydrogen peroxide is employed as the principal reagent; and although the methods he refers to have been previously mentioned, the paper in question gives such data as amount to a conclusive proof of the correctness of the results to be obtained by this analytical method.

1. *Standardizing Potassium Permanganate with Hydrogen Peroxide in the Nitrometer.*—In this case it is necessary to work with acid solutions containing a large excess of sulphuric acid. The permanganate employed was made from pure crystals, and was as nearly as possible semi-normal, namely, 1 C.c.=0.004 Gm. of oxygen. It was standardized with iron wire; with crystallized oxalic acid, purified according to Winkler's process and dried to constant weight in a Victor Meyer's air bath at 56°; and with ordinary commercial hydrogen peroxide.

The results were as follows:

With iron wire............1 C.c. = 0.003999 Gm. oxygen
With oxalic acid...........1 C.c. = 0.003997 " "
With hydrogen peroxide...1 C.c. = 0.004002 " "

For 10 C.c. of permanganate, 30 C.c. of dilute sulphuric acid (1 : 5) and 10 C.c. of hydrogen peroxide should be used. The above numbers show that the standardizing with hydrogen peroxide in the nitrometer is one of the most accurate methods, having the great advantage that it is carried out within an extremely short time without requiring a standard substance of accurately known composition.

2. *Estimation of Bleaching Powder or Bleach Liquor by means of Hydrogen Peroxide in the Nitrometer.*—The reaction which takes place is as follows:

$$CaOCl_2 + H_2O_2 = CaCl_2 + H_2O + O_2.$$

It is not necessary to know the exact composition of the reagent, but, as it is desirable not to employ too large an excess, it is best to make a rough preliminary test by titrating the hydrogen peroxide with an excess of bleach solution.

For analysis, the reagent should be diluted before use, so as not to give out more than 7 C.c. of oxygen per cubic centimeter, and it must be made distinctly alkaline with sodium hydroxide up to the point at which a flocculent precipitate appears. The reading should be effected quickly—say five minutes after mixing the liquids—otherwise the results will be too high, owing to the gradual evolution of more oxygen from the alkaline liquid. In order to find the percentage of available chlorine by weight, it is necessary to remember that every cubic centimeter of gas evolved, reduced to 0° and 760 Mm., represents 0.003167 Gm. of chlorine. In practice it is best to dissolve 7.917 Gm. of bleach in 250 C.c. of water and use 10 C.c. of the solution for each test, when every cubic centimeter of oxygen evolved will directly indicate 1 per cent of available chlorine.

This involves the use of a 50 C.c. nitrometer. It is shown that the estimations are just as accurate when water is employed in the nitrometer as when using mercury. From the results of a large series of comparative tests, the author infers that the nitrometric method yields quite as concordant results in the testing of bleach as Penot's method, although by the former process there is about 0.2 per cent more chlorine found, and this amount might be deducted as a constant from the nitrometric results to bring them into entire concordance with those obtained by Penot's method.—After *J. Chem. Soc.*

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Oxycyanate of Mercury.—Hydrargyrum oxycyanatum, HgO(CN), is another addition to the already long list of mercurial compounds (*Pharm. Zeit.*, April 15th, p. 241). It is recommended by Dr. Boer as surpassing mercuric chloride in antiseptic properties, and is said not to coagulate albumen, to exercise only a faint caustic action, and not to attack instruments so readily as corrosive sublimate.

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EDITORIAL.

THE SIZE OF A DROP.

THE paper of Mr. Philips on the first page of this issue will be echoed from the experience of every one who has worked at the prescription counter; but it must be acknowledged that it relates to an evil the existence of which is more apparent than its remedy.

It may not be impracticable for some authoritative body, like the American Pharmaceutical Association or the Committee for Revising the Pharmacopœia, to recommend or adopt a form of drop-former which may serve as a standard, and which may, in a degree, lessen the elements of uncertainty; and, although not capable of eliminating them entirely, it may reduce the limits of variation so far as affected by the form and material of the instrument used.

It will be readily understood that the variations in the fluidity and the weight of the liquid to be measured will still exist as a disturbing factor, and that an approximate degree of accuracy only will be the best obtainable result, even were a standard drop-former used in every case.

Moreover, it is extremely doubtful whether it will be possible to abolish, to any great extent, the use of the drop as a measurement by prescribers. If this *could* be done, and if, in dose tables, minims could be substituted for drops, and manufacturers were to make use of minims in the directions given by their labels, then the trouble would practically cease. So, too, one might say that if the millennium were to come we should be better off in numerous ways. As yet one is about as likely to occur as the other.

As a matter of fact, prescribers regulate dosage less according to conventional usage than by the effect produced or desired in a particular case; and in the use of an active remedy, like gelsemium, for example, they expect it to be taken until its effects are manifest. It may be that two or three doses will suffice, or it may be a dozen; and, unless the single dose is evidently so large as to be dangerous, it may be a gratuitous service on the part of the dispenser to concern himself about the effects which *might* follow the use of the entire quantity, when it does not seem to have been of importance to the prescriber. The fact that directions of the prescription provide for repetition of doses at stated intervals does not necessarily imply that the entire number of doses is to be consumed without intermission.

If a standard drop-former were to be adopted by the Pharmacopœia, there would still be doubt in some cases whether the prescriber intended the particular quantity which it would give, or the conventional drop of the haphazard variety, and the dispenser would still be but little better off than before, excepting the existence of a standard upon which he could rely in case of trouble. In the event of the adoption of a standard instrument, there would arise the necessity for establishing a standard for the number of drops equivalent to a certain number of minims for every liquid galenical in use, which would also have to be incorporated into the Pharmacopœia, so far as these articles are made official.

The subject is certainly one worthy of consideration, and we hope that Mr. Philips' remarks may elicit an expression of opinions and suggestions by others.

SYNTHETIC MUSK.

SOME interesting information concerning this new commercial product has recently been received from Mr. W. P. Ungerer, an authority in matters relating to perfumes. This substance results from a reaction of nitric and sulphuric acids in the presence of isobutyl-toluene according to a process patented by Trudel and Crafts. It has the form of acicular white crystals, becoming yellow by exposure to light, and has a strong musky, nitrous, cinnamic odor, reminding one of the odor of Ambrette seed (*Malva moschata* Lin.), and the excrement of the marten. It is fusible at 110° F., soluble in alcohol and ether.

While Mr. Ungerer considers the discovery of artificial musk to be very important and likely to result in great commercial value and usefulness, it is probable that the idea which many people have that it will take the place of natural musk must be considerably modified as a result of experience in its use. It is especially desirable that experiments should be made to show the effect of its combination with such other substances as are used in the manufacture of perfumes and toilet-soaps, since these combinations furnish a more reliable test of its value than the simple method prevailing among perfumers of judging by the odor given by blotting paper moistened with a solution or tincture. Mr. Ungerer's experiments thus far show the disappearance of the odor of synthetic musk in the presence of benzoated tallow, soapstone, chalk, cacao butter, Peru and Tolu balsams, and all fatty acids. He thinks that a considerable limitation of its usefulness will result from its paralyzing influence upon the olfactory nerve and its remarkable tendency to assert itself and overpower all other odors and destroy their combinations. It has an unfortunate disposition to stand alone without blending—or "marrying," as perfumers express it—with others, as is likewise the case with the amorphous precipitate called Neroline, which has caused it to be a failure in the hands of perfumers.

Another fact noted by Mr. Ungerer is the absence of by-products. In the case of natural musk the odor is almost inexhaustible, and the substance not only yields by percolation a second and third tincture, but the dried residues are available for sachets, toilet powders or soaps. Perfumers have come to depend largely upon this valuable property of natural musk, and look to it as a necessity for lucrative manufacturing.

A reliable quotation on this new product is derived from Messrs. Schimmel & Co., who state, in a recent semi-annual report, that "opinions of the artificial musk are still very divided; so far as our experience goes, the majority of perfumers and soap manufacturers are disinclined to have much to do with it, and are satisfied, with experiments already made, that artificial musk of the present quality is not suitable for fine perfumery and will not displace the natural musk. So much may be accepted as certain, and its victories must be looked for in another field."

Mr. Ungerer believes that further examination of various preparations is necessary before decisive judgment can be reached in either direction. The quality of artificial musk at present leaves much room for improvement, and it may safely be assumed that a much more finished product than the present will sooner or later appear in commerce. Various unsatisfactory properties of synthetic musk, particularly the yellowing of the substance or its solution upon exposure to light, seem to indicate that the product has not yet attained the level of purity.

One of the largest perfumers of Paris, who was among the first to undertake the trial of synthetic musk, has said:

"Every perfumer will try it; but the fact is that the invention is a scientific one only, and, so far as demonstrated in my experiments and those of many others who were as enthusiastic as myself over the new discovery, we are satisfied that the new alleged substitute for musk is doomed."

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The Action of "Leech Extract" upon Blood.—Haycraft has shown that the "extract" prepared from the anterior part of the medicinal leech contains some agent which has a strong anti-clotting action upon blood.

The "extract" described by him is neutral to litmus, and contains a proteid which appears to be albumose. At all events, the albumose precipitated by ammonium sulphate has all the anti-clotting power of the original extract, and the extract minus the albumose has no such power.

Admixture of this extract to blood prevents it from coagulating.—After *Journ. Chem. Soc.* [It is, no doubt, due to this very agent that leech bites often bleed so persistently after the leech has been removed.]

Solubility of Iodoform in Olive Oil.—The solubility of iodoform in the fixed oils is stated somewhat variably. Squire gives 1 in 30 of olive oil; Martindale "1 in 60 of vaseline and oil of almonds, and about the same in fats and other fixed oils."

F. Klingmann (*Apoth.-Zeit.*, 1891, 70) has recently determined the factor with care. Five Gm. of iodoform were added to 30 Gm. of olive oil, the whole being shaken for twelve hours by means of a small turbine. Then it was filtered, and the saturated oil was found to contain between 2½ and 3 per cent of iodoform. With due allowance for specific gravity, this shows the solubility of iodoform to be 1 part in 39 fluid parts of olive oil.—*Chem. and Drugg.*

Window Polishing Paste.

Prepared Chalk	90 parts.
White Bole	5 "
Armenian Bole	5 "

Rub together into a smooth paste with

Water	50 parts.
Spirit	25 "

The paste is to be rubbed on the window, allowed to dry, and then rubbed off with cloths.—DIETERICH, after *Chem. and Drugg.*

CORRESPONDENCE.

A LETTER received from Mr. H. W. Snow requests the insertion of the following:

[On page 156, near the top of the first column:]—In 1883, C. G. Wheeler presented to this Association a paper in answer to the query, "Is the citrate of caffeine in the American drug trade a mixture?" I cannot fully coincide with the conclusions he has drawn, in so far as they bear on the question of the existence of a true citrate of caffeine. Quantitative methods alone, as used by Wheeler, do not prove anything so far as this particular salt of caffeine is concerned, and recourse must be had to physical properties, as solubilities, melting point, subliming point, etc. Mr. Otto Scherer, in a paper on this subject, concluded that four out of five samples of commercial citrate examined by him were simply pure caffeine, containing no citric acid whatever, while the fifth contained about 50 per cent of caffeine, yielded only a trace of caffeine to chloroform when treated dry and melted at 160° to 161° C., whereas the first four samples melted at 234° C., and a sample of citrate made by Lloyd's process fused at 159° C. The chloroform test in itself would be sufficient evidence of the genuineness of this particular salt. The proportion of caffeine found (45 per cent) showed the salt to correspond very nearly to one molecule of alkaloid to one molecule of acid (50.3 per cent of alkaloid), or the most acid of the three salts of caffeine and citric acid. Mr. Scherer's paper is also valuable for the numerous references it gives to the literature of caffeine citrate.

Coloring Coal Oil Red.

DEAR SIR:—Replying to Query No. 2,525 in May issue of AMERICAN DRUGGIST, I would state that a very simple and satisfactory red coloring of coal oil may be effected by alkanet root. Two pounds of ground alkanet root are sufficient to give a beautiful shade of red to one barrel of oil. It should stand a day or two, and be occasionally agitated. Different shades of red may be produced by using more or less of alkanet, and may easily be tested on a small scale in ordinary bottles. With much respect,

Yours truly,
NATHANIEL R. BRADNER, M.D.

PHILADELPHIA, PA.

Hypnal.

WILL any of our readers investigate and reply to the following?—ED. AMER. DRUGG.

Ed. American Druggist.

DEAR SIR:—In your journal for May 1st you give directions for preparing "hypnal." I tried the process, with no better result than to spoil valuable medicines. I followed directions exactly. After mixing the two solutions the liquid separated into two layers—a clear supernatant liquid, and an oily layer at the bottom of the funnel. I separated the liquids, set them aside, expecting the oily liquid to crystallize; it has been four days since I made the experiment, and no sign of crystallization has occurred in either. What is the matter?

Respectfully, M. A. B.

MARSHALL, MO., May 16th, 1891.

Tooth Wash.

A SAMPLE of tooth wash sent us for examination, and supposed to contain saccharin, has turned out to be absolutely free from it. The sweet taste is due to glycerin, sugar, and partly, also, to the small amount of chloroform present. A close imitation of it may be made as follows:

Tinct. Quillaja (Nat. Form.)	10 fl. oz.
Glycerin	10 "
Aromatic Elixir (N. F.)	10 "
Chloroform Water	8 "
Tinct. Myrrh	2 "
Talcum	q. s.
Tinct. Lavender Co	1 fl. oz.

Mix the first four liquids, add a little talcum, mix well, and filter. To the filtrate add the compound tincture of lavender.

A preparation similar to the above is much in use in this city.

NEWS AND NOTES.

ENGLAND.

We are just beginning to feel the return of "*la grippe*," or, as it is more commonly called, influenza. Already large firms are depleted of several members of their staff, and, although it does not appear so virulent and widespread as last year, yet it is spreading on all sides. A month ago it appeared first at Hull, and quickly spread through the densely populated manufacturing districts of Yorkshire and the adjoining counties. Only within the last week or two has its presence been felt in London. Several of the wholesale houses have issued, with characteristic promptitude, circulars to the trade and medical profession, respecting their "influenza mixture," chiefly, I believe, consisting of acetate of ammonia, aconite, quinine, etc. Chemists generally have been exhibiting notices respecting the value of quinine, antipyrin, etc., in cutting short an attack.

A West End firm has sold during the last two or three weeks over four gallons of the ammoniated tincture of quinine across the counter in 2-oz. bottles at 36 cents. This has been chiefly in request as a prophylactic, and it is again a noticeable feature with regard to this epidemic that the fashionable and aristocratic quarters have suffered most.

Medical practitioners state that the symptoms were identical with those of last year; but there is more pneumonia and bronchitis than before. Most of them agree that in the first stage aconite, antipyrin, and acetanilide are of great value, whilst subsequently quinine and tonics are advisable. On the other hand, a prominent physician, Dr. Mortimer Granville, has written to the *British Medical Journal* to explain that all this treatment is wrong, and that his method is alone scientific. He states that the fever, which is invariably present, should be overcome by tonics, and not by depressants such as antipyrin, or even quinine. Referring to his experience with the epidemic of 1847, he affirms that he found that diffusible stimulants, such as camphor and ammonia, succeeded when febrifuges failed or did harm. He used these remedies, especially the former, last year, and this year again, and, although he has met with a large number of cases with extraordinarily high temperatures, this treatment has not failed.

It is not very long ago since this same physician suggested a "concentric pill," which was made at his request and charged at 12 cents *each pill.* The following was the brilliant idea: One grain pill of aloin was made and coated with tolu varnish; then one grain of extract of cascara was wrapped round this, and a keratin varnish applied; finally the pills were moistened with mucilage, and rolled in finely-powdered iridin, by which means they were supposed to each take up one grain of that resinoid body. It was supposed that by this means all the value of three pills would be obtained in one, as each coating was expected to dissolve in either the stomach or the intestines. Needless to say, the idea is exploded. Since then he has suggested a cure for cancer, depending upon thalline, or a derivative of it, whilst his prescriptions are a marvellous sight to see.

Now the revision of the U. S. Ph. is in progress, would it not be an improvement to direct that iodoform ointment should be made by melting the benzoinated lard and adding the iodoform, rather than in the cold as now directed? Any one who has made it by the two methods would notice at once the difference in consistence of the two ointments. The one made by heat is fairly hard, some of the iodoform having been dissolved, whilst the U. S. Ph. method gives a very soft product.

No progress can be reported of the Pharmacy Bill, which is before Parliament; it has merely roused the resentment of one or two honorable members, who have savagely announced their intention to oppose it. There is a general opinion abroad that opposed business stands very little chance this session.

The Pharmaceutical Society, however, is rousing itself to adequately carry out the celebration of the jubilee of its existence. The annual meeting takes place on the 27th, and a vote will be taken upon the subject of increasing the stringency of the preliminary examination, which at present only embraces the three subjects of Latin, arithmetic, and English grammar. In the evening a conversazione will take place at the Society's houses, 16 and 17 Bloomsbury Square, and addresses of congratulation will be read. On the next evening a gastronomical function takes place at the Criterion Restaurant, and some 200 to 300 guests are expected to be present.

A company has recently been formed here to exploit a so-called new drug, a substitute for quinine. Under the name of Kreat Halviva, the Halviva Company have made some stir with their remedy, and already several doctors have given them the usual flowing testimonials. It now appears from the statement of Mr. E. M. Holmes, F.L.S., Curator of the Pharmaceutical Society's Museum, that Kreat is only an old Indian term for a species of chirata, closely allied to, if not identical with, *Ophelia chirata*, which has been an official drug for many years. These medical men will feel slightly crushed when they learn that their new remedy is only a preparation of chiretta.

London Market Report.

Mincing Lane, May 13th, 1891.

There has been a fair amount of business transacted during the last month, but prices have only maintained their level in most instances. Heavy chemicals have been firm, with considerable inquiry, but sulphate of copper is quite unsalable. Quinine has advanced a shade, and prices seem firm, the last cinchona auction showing a better demand. Opium has been very easy lately, but shows signs of stiffening. Advices from Smyrna state that dealers have been more anxious to realize, and American buyers are credited with having obtained the lowest rates recorded this year. The sales last month at Smyrna were over 450 cases at prices ranging from 1.92 to 2.84 per lb. Ipecacuanha is firm, and a small rise has taken place in shellac.

The following are current prices:

Acid, citric	per lb.,	0.41	Balsam Peru	per lb.,	1.7
tartaric	"	.29	Cascara	"	.06
oxalic	"	.07	Cinchona, Indian.	"	.08 to .16
Cream of tartar.	"	.21	S. American	"	.17
Arsenic	per cwt.,	3.18	Ergot	"	.28
Bleaching p'wd'r	"	1.92	Ipecacuanha	"	1.92
Copper sulphate.	"	8.8	Jalap	"	.30
Chlor. of potash.	per lb.,	.11	Oils, linseed	per cwt.,	5.24
Cyanide, pure	"	.50	cotton	"	5.36
Bichromate	"	.07	turpentine	"	7.30
Mercury	"	.44	aniseed	per lb.,	1.5
Calomel	"	.76	petroleum	per gall.,	.11
Corrosive sub.	"	.60	cassia	per lb.,	.84
Soda, caustic	per cwt.,	2.58	peppermint, H.G.	"	3.0
bicarbonate	"	1.74	Opium	"	2.5 to 2.76
			Shellac, TN	per cwt.	1.72

CANADA.

There is little of interest to the trade to record at present beyond the coming election of officers of the council for the Ontario College of Pharmacy. Business is excessively flat. Drug clerks are getting wary and making fewer mistakes. Suicides are not so common; then what has one to write about?

Under the new system of distribution to secure representatives in the council of the Ontario College, Toronto is entitled to two members. There the selection has taken the form of a regular political campaign, with its campaign literature rife with accusations against the opposing party, personal canvasses and caucuses. The high party feeling there has led the adherents of each side to bring out two candidates. Mr. C. D. Daniels for the Eastern Division, and Mr. J. H. Mackenzie for the Western Division, will uphold the present council; while Mr. A. Jeffrey for the Eastern, and Mr. Gibbards for the Western Division, will advocate Mr. Shuttleworth's cause.

Each side is throwing obstacles in the way of the other and making all the difficulties possible. A special meeting of the council was called on the 28th of April, ostensibly to consider plans and specifications for the proposed addition to the college building, about which matter there could be no necessary haste. However, this business was gone through with, not without opposition on the part of some of the members, who do not consider it wise to increase the liabilities and expenses of the college beyond the absolute requirements. Then the question of engaging the new staff of teachers for a term of years was brought up and carried through, much to the disgust of the adherents of the old staff. This makes a still more complicated condition of affairs, and I am afraid much legal advice will be appealed to before it is smoothed out. If the present council has the power to make arrangements for any length of time, the college will be under the absolute control of this new staff of teachers, who may do as they wish for two years at least; and, should they abuse their authority, may make things decidedly unpleasant.

The students are all in favor of Mr. Shuttleworth, as testified by a presentation on the closing of the school for the session. After many kindly and laudatory sentiments were expressed by the students, and hopes for the speedy and happy termination of the troubles, Mr. Shuttleworth was presented with an oxidized-silver reading lamp, Mr. Avison with a silver oyster tureen, and Mr. Harrison with a set of carvers.

Unless an agreement is come to soon, there will be a complete disrupturing of the confidence existing in the trade in Canada, and I very much fear cutting and attendant demoralization will complete the series of disasters inaugurated by the present hard times.

At a meeting of the druggists of District Association No. 10 (Norfolk, Oxford, and Perth), held in Woodstock on May 15th, the present representative, Mr. J. J. Hall, of Woodstock, was unanimously chosen as the representative for this district, and resolutions were passed indorsing the record and platform of the council of the college as set forth in their circular, and pledging the members of the association to support the council in their undertakings; requesting the council of the college to enforce clause 23 of the Pharmacy Act, which establishes the standard and provides against adulteration of the preparations of the Pharmacopœia, as certain jobbing and manufacturing chemists are selling such preparations to the medical profession that are not up to the standards, thereby destroying confidence in the efficacy of medicine; pledging the association to discourage the sale of morphia and opium, except upon a doctor's certificate, and all patent medicines that do not allow the retailers a fair margin of profit; the giving of free samples, the purchase of exclusive agency to get the benefit of advertising, and recommending each town and city to unite on these lines.

A meeting of the Pharmaceutical Association of Hamilton District was held May 8th. After a quorum was proved and some unimportant business connected with the changing of prices was transacted, a resolution was passed approving of the action of Mr. J. A. Clark as a member of the council, and desiring the placing on record of their appreciation of his services in protecting the interests of the college and advancing the standing of the profession, etc., etc., nominating him as a candidate for re-election and pledging themselves to aid in his election.

As it was desirable that the motion should be unanimously approved of by the members of the association, a copy was circulated the day following among the druggists who were not present at the meeting, and received the signatures of the majority of the druggists in this district.

At a meeting of the Elgin and Middlesex Association, held in St. Thomas, a resolution was carried condemning the course pursued by the present council and approving of the action of their representative, Mr. L. T. Lawrence, as well as Messrs. D'Avignon, Jeffrey, Walters, and Sanders, and nominating Mr. Lawrence for re-election.

The Ontario and Durham Association, meeting in Oshawa, passed a resolution unanimously disapproving of the present council, and pledged themselves to support Mr. I. S. Kyley at the coming election.

The fourth semi-annual examinations of the Ontario College of Pharmacy were opened in the rooms of that institution at nine o'clock on Monday morning, May 11th, at which one hundred and ten students presented themselves.

KANSAS CITY.

U. V. Wingfield has enlarged his stock at Shackelford, Mo.

Harlon White has increased his already large stock of drugs at Drexel, Mo.

Mr. Laforce, of Adams & Laforce, Smithville, Mo., has lately visited Kansas City.

C. V. Rings, of Parkville, Mo., visited us on business the 9th.

V. A. Barnes, of Winchester, Kan., bought drugs here on the 8th.

E. E. Anderson, of Garland, Kan., was a guest of the Pacific House a few days since.

J. T. Fritzler has succeeded C. D. Cravens at Prathersville, Mo. Success to his new venture!

J. T. Anderson, the enterprising young business man and druggist of Buckner, Mo., was in the city on the 1st.

J. A. Jackson, after spending a few days with us, has returned to business at Nevada, Mo.

Anthony Mueller visited this city from that town of rock houses—St. Mary's, Kan. It's not to be assumed that he comes from a "rocky" town.

Henry Adams bought new drugs last week to recuperate his mammoth store at Spring Hill. He says business is fair in his district and the rains are helping it along.

H. J. Barr, of White City, Kan., showed his pleasant face on our streets for several days last month.

Spencer E. Scott is with Dr. Herbst at Twelfth and Charlotte Streets.

The Kansas State Pharmaceutical Association met at Ottawa on the 19th, 20th, and 21st. A full account will appear in our next issue.

S. J. Keiffer, who is one of the happy twenty-three who passed the Board of Pharmacy at the April meeting, is now at C. E. Corcoran's, Ninth Street and Troost Avenue.

None of our druggists were at the New Orleans meeting of the A. P. A. Several expressed a desire to go, but could obtain no concessions from the railroads.

H. B. Sparks, Ph.G., has returned from a visit to Parsons and Pittsburg, Kansas, where he has been the guest of parents and relatives. It is supposed he didn't join the Alliance, as he is back again at Tenth Street and Harrison.

Don't forget that the Missouri Pharmaceutical Association meets at Excelsior Springs, June 9th, 10th, 11th, and 12th. Kansas City will send a larger delegation than ever before. The fare from this city has been reduced to $1.25 for the round trip, including 'bus from the depot to the "Elms." A rate of $2 per day has been secured at the big hotel. Local Secretary L. D. Cravens has all arrangements completed and promises to make all comers feel at home.

S. S. McIntyre, who owns one of the most handsome drug stores in Clay Center, was visiting in the city the past week.

W. T. Ellibrit spent several days here this month looking after business interests. He is one of the foremost druggists of Higginsville, Mo.

Mr. Smith represented the equally well-known firm of Smith & Sons among our wholesale brothers last week. They are located at Raystown, Mo.

Dr. Alvin Snyder, of Seneca, Kan., visits us these days very often. He is worthy of the pharmaceutical profession, even if he is a doctor.

B. Streator came from Durango, Col., to purchase goods from our wholesale trade. Kansas City wholesale druggists make hard competitors for Western patronage.

Hamilton & Strap is the name of the new drug firm at Orrick, Mo. Dr. Hamilton is a young physician who has been fortunate in his profession, and will, of course, have equal success as a pharmacist.

P. H. Franklyn, Secretary of the Missouri Board of Pharmacy, was up from Macon City this week and the guest of Wm. T. Ford, the Kansas City member of the

Board. We suppose the visit means business for candidates at the next meeting of the Board.

Articles were filed with the Recorder of Deeds of Jackson County, on the 9th of May, changing the name of the Meyer Bros. Drug Co. to Schulte-Lynn Drug Co., conveying the firm's property on Fifth and Washington Streets. The action is a mere formality, as the change in the business was made over a year ago.

The Executive Board of the Alumni Association of the Kansas City College of Pharmacy has issued cards for an old-fashioned dinner picnic at Washington Park, June 7th. This is the first of a series of social meetings to be held during the summer months. At its last meeting Miss Susie Holzinger was elected Secretary of the Board.

The Kansas City Pharmaceutical Association is after the dry-goods stores here which are cutting prices on proprietary articles. They have found where these cutters buy their goods (by the way, it is from wholesale drug houses in a neighboring city, not local ones), and have asked the various manufacturers to cut these wholesale houses off their list of customers, and in other ways to help them down the cutters. This Association has done more work that *counts* than all the other drug associations put together toward holding up the prices of proprietary articles, etc. Their work is not ready for publication till all their plans are completed, when they will surprise all our sister organizations with the magnitude and thoroughness of their work.

GEORGIA.

The sixteenth annual meeting of the Georgia Pharmaceutical Association met in Augusta, May 12th, at Masonic Hall, and was called to order by President Goodwyn at 10:30 A.M. Local Secretary Smith gracefully introduced Mr. P. A. Stovall, who delivered the address of welcome in appropriate remarks, tendering the pharmacists the hospitalities of the city, which was pleasantly responded to in behalf of the Association by Mr. Harry Sharp, of Atlanta. Then came the address of President J. W. Goodwyn, of Macon, which was a valuable and interesting paper on the work and scope of the Association, and was received by closest attention of convention. This was followed by a paper submitted by Mr. S. C. Durhan, of Augusta, calling for a higher standard of pharmacy, which was a very able and interesting article. Second session was called to order at 3:30 P.M. by President Goodwyn. Election of officers being next in order, the following were elected: president, H. R. Slack, Jr., Lagrange; 1st vice-president, E. M. Wheat, Columbus; 2d vice-president, C. M. Crosby, Marietta; 3d vice-president, J. P. Smith, Augusta; treasurer, Mallory H. Taylor, Macon; secretary, H. H. Arrington, Summerville; local secretary, J. P. Turner, Columbus. The remainder of the session was taken up by reports of committees and answers to queries. The third session was had after a pleasant ride up the canal to the locks. The meeting was called to order by President Goodwyn at 11 A.M. George F. Payne, Chairman of the Committee of Awards, made his report, awarding first prize of $50, offered by L. W. Hunt, of Macon, for the best display of pharmaceuticals prepared by an assistant, to J. T. Oliphant, of Atlanta; and second prize of $25, by N. I. Brunner, Ph.G., Macon, to W. D. Burks, Lagrange. The following persons were selected whose names are to be presented to the governor, one of whom is to be appointed to fill a vacancy in Board of Pharmaceutical Examiners, caused by expiration of term of F. Joerger: George F. Payne, Atlanta; E. J. Kieffer, Savannah; J. P. Turner, Columbus; C. M. Crosby, Marietta; R. H. Laud, Jr., Augusta. At the fourth session, after transaction of routine business, the Association adjourned to meet in Columbus May 10th and 11th, 1892.

MICHIGAN.

Dr. J. W. Bean & Son's drug store in Edwardsburg was burned to the ground early in the month. This is extremely unfortunate, as they had just refitted their store at considerable expense. The stock was entirely consumed, and as they carried no insurance they will suffer a loss of about $5,000.

Eli W. Moore, brother of Druggist Moore, of Ann Arbor, has been appointed a member of the city Board of Health.

The Hancock Chemical Works were recently destroyed by fire. The entire plant was consumed, including the boarding house and office building. The loss will reach $20,000, the only insurance being on the boarding house for $1,500.

The third examination this year of the Board of Pharmacy was held at Ann Arbor, and the following were given certificates: Registered Pharmacists, F. Ashley, H. Briggs, Al. Hutchinson, E. N. Kennedy, J. B. Ostrander, S. B. Robby, J. B. Sutton, of Ann Arbor; H. L. Burd, Detroit; A. W. Adams, Chesaning; H. E. Allen, Morenci; L. M. Real, Richland; C. H. Bostwick, Manton; A. Campbell, Crystal Falls; J. E. Carnoty, Watervliet; F. M. Chapel, Grand Blanc; H. J. Connell, Belding; S. A. Irwin, Leslie; L. S. Freeman, Chelsea; E. J. Garner, Petoskey; J. L. R. Hubbard, Waterloo; C. E. Humphrey, Holly; J. A. Jaynes, Muskegon; R. E. Kincaid, Hersey; C. M. McGee, Farmington; J. J. Mason, Lansing; M. G. Millman, South Lyons; B. L. Murray, Ypsilanti; I. J. Rickert, Charlotte; D. M. Russell, Sturgis; F. J. Temple, Ridgway; J. A. Warner, Woodland; Assistants, A. W. Brownlee, J. B. Chapman, H. M. Lamb, W. H. McAllister, H. J. Von Loon, George Van Nostitz, Detroit; A. Bennet, Pattonville; H. Bradley, Williamston; C. Dupree, Holland; C. E. Doyle, Middleville; E. J. Fletcher, Grand Rapids, J. C. Furness, Nashville; E. Hume, Owosso; E. R. Hunt, Lowell: H. J. Isbell, White Pigeon; E. M. Jefferson, Battle Creek; J. Livesey, Adrian; C. N. Reynold, Bangor; F. A. Moon, Lyman; H. Taft, Lowell; S. D. Roche, Concord; W. S. Selvage, Saginaw; W. L. Smith, Fenton; H. I. Rice, Lennox; F. Chadwick, Muskegon.

The twenty-third annual meeting of the Homœopathic Society of Michigan was held at the Morton House, Grand Rapids, May 19th and 20th. On the first day, Dr. C. F. Sterling, chairman of the section on larnygology, read a paper on "Nitric Acid in the Treatment of Diseases of the Nasal Passages," and Dr. T. L. Wilson read a highly interesting paper on "Ophthalmic Therapeutics," which was received with marked attention. On the second day papers were presented by Dr. W. M. Bailey, on "Surgical Treatment of Peritonitis"; Dr. C. S. Mopley, on "Surgery of the Knee Joint"; Dr. S. H. Knight, on "Surgical Dressing"; Dr. R. H Stevens, on "Cervical Degeneration"; and a number of others. Numerous papers were also read by title. Dr. Polglaise, the well-known Detroit physician, is corresponding secretary of the society.

At the recent meeting of the State Eclectic Medical Society, the following officers were elected for the ensuing year: president, Philo B. Wright, Grand Rapids; first vice-president, J. D. Crum, Owosso; second vice-president, C. O. Jennison, Greenville; third vice-president, C. M. Stock, Plainwell; secretary, H. P. Evarts, Oakdale Park; treasurer, J. D. Peters, Grand Rapids; censors, W. H. Smith, Niles; Wm. Bell, Smyrna; G. W. Mafi, Fremont; C. E Cavie, Port Huron. The proceedings of the society were marked by the adoption of an asinine resolution recommending the abolition of the State Board of Trade, its functions to be preformed by an "Examining Board" consisting principally of eclectics and homœopaths.

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At the annual meeting of the faculty for the Buffalo College of Pharmacy, the following officers were elected: dean and treasurer, Willis G. Gregory; registrar, Eli H. Long; secretary, John P. Gray; representative in Council of the University of Buffalo, Willis G. Gregory.

The Council of the University of Buffalo have decided to sell the present property of the University and buy elsewhere.

The number of students registered in the Buffalo College of Pharmacy for the session of 1890–'91 showed an increase of 25 per cent over the registration for the previous session, and of 90 per cent over the first year of the College (1886–'87). The increase has entirely filled the present laboratory facilities of the College. The anticipated increase of attendance for the coming session will make it necessary to provide additional accommodations.

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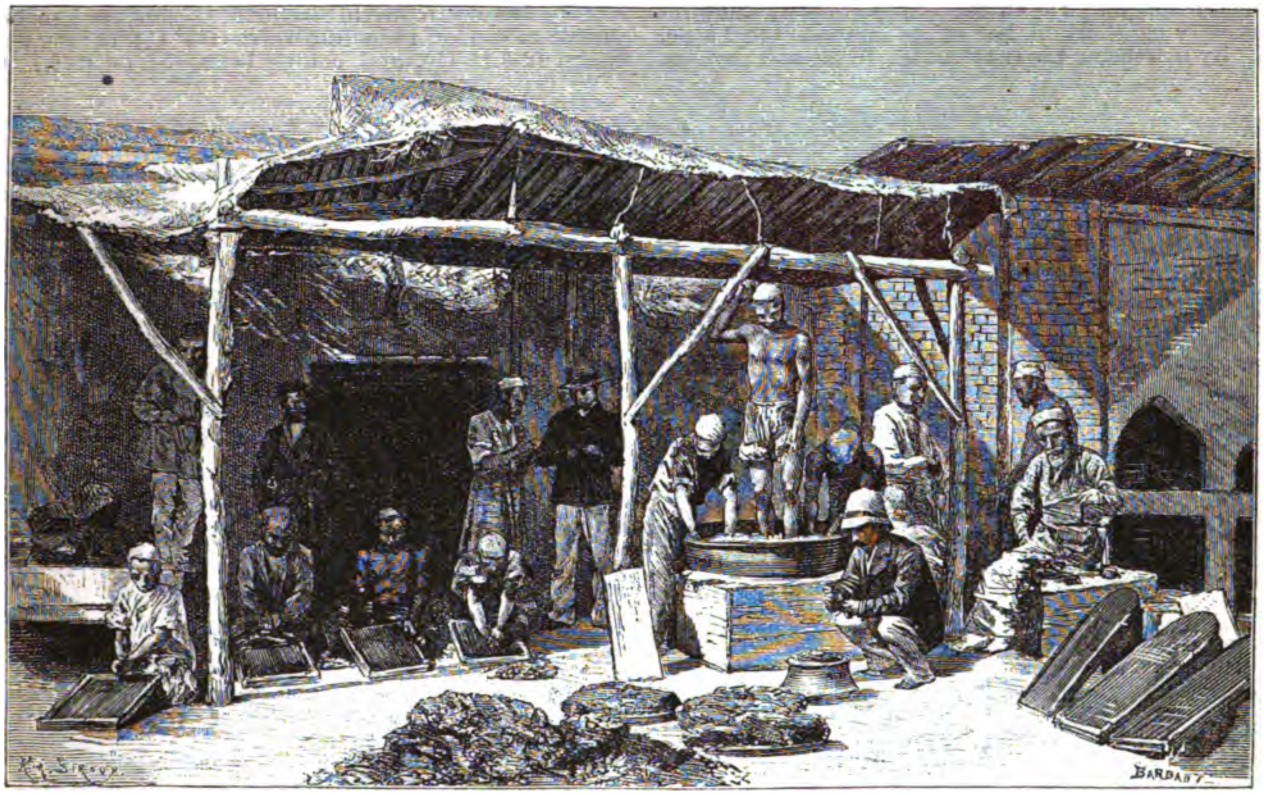


Fabrication of Smoking Opium.

OPIUM-MANUFACTURING IN PERSIA.

PERSIA has of late years considerably increased its production of opium; but its deficient alkaloidal strength, as compared with the opium of Asia Minor, renders it less desirable, excepting as a source from whence morphine may be derived. The same characteristic has led to its use for the manufacture of opium for smoking, for which China, Siam, and the Sunda Islands furnish a market. Pharmaceutical literature furnishes few details of the mode of preparing this particular form of the drug, and the following brief account and its illustrations, by Madame Dieulafoy, will therefore be interesting. Speaking of a visit to the opium works of Mr. Collignon, in the suburbs of Ispahan, she writes:

The juice derived from incision of the capsules is carried to the works in copper pans and treated in two different ways, according as it is to be used for pharmaceutical purposes or for smoking. In the first case, after the evaporation of the contained moisture, the opium is spread upon boards with a smooth spatula of iron. When it is reduced to a paste and deprived of foreign matter, it is formed into balls of equal size and dried upon straw prior to its being packed for shipment—chiefly to England and Holland.

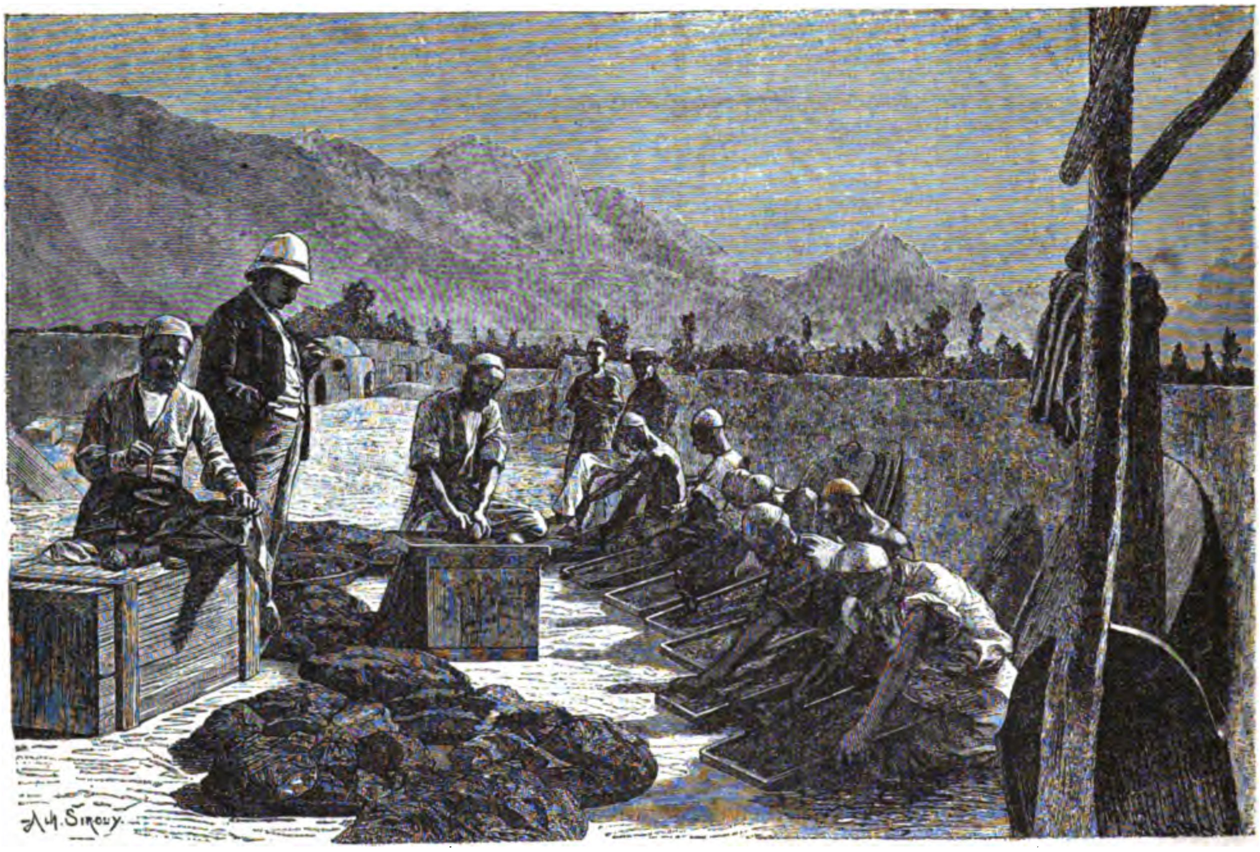
When, on the contrary, the opium is prepared for smoking, the workmen cleanse it of impurities and knead it, as in the preparation of pharmaceutical opium, and then mix with it a certain proportion of oil for the purpose of facilitating its combustion. After having carefully mixed the two by treading with the feet (as in the process of wine-making), it is again worked over with spatulas to expel any excess of liquid and to give a greater degree of fineness to the paste. It is then formed into balls [or rolls], and sent to China and the Indies, or sold, secretly, to Persians.

Poppy cultivation is a large source of revenue in the region of Ispahan, a mule-load being sometimes valued at five to six thousand francs.

Cantharidin.

In a paper recently read by Eugene Dieterich before the Berlin Pharmaceutical Society, he drew attention to the availability of cantharidin in the preparation of blistering plasters and ointments.

Hager (in *Handb. d. pharm. Praxis*) states that 1 part of cantharidin is equal in effect to 30 parts of cantharides. Dieterich (and others) find that Spanish flies yield 0.5 per cent of cantharidin ; hence 1 part of the latter would be equivalent to 200 of cantharides. On trying this proportion in practice it was found that the effect was too severe. The best proportion was found to be 1 to 1,000 if the vehicle was oil or a soft plaster mass. Such a combination produces a blister in five or six hours without producing too great a pain. In the case of *hard* plasters, where only the surface has a chance to act, the quantity of cantharidin has to be increased to 1.5 per cent. By increasing the cantharidin, in the soft preparations, to 3 parts in 1,000, the time of action was reduced to three hours, but the pain caused thereby was insufferable. But it was found that addition of *salicylic acid* shortened the period of action materially. By adding 5 per cent of salicylic acid to the official Empl. cantharidis, this will require one to one and a half hours less to produce a blister. But any shortening of time also increases the pain.



Fabrication of Pharmaceutical Opium. (See page 181.)

Regarding the purification of cantharidin, Dieterich states that this may be done in two ways, either by sublimation or by recrystallization. Sublimation is very easy, does not incommode the operator (if done carefully), and furnishes the substance in handsome white needles, sometimes over 10 Mm. in length. This kind of cantharidin always possesses a very sharp odor, which can only be removed by recrystallization. Moreover, the sublimed produces much more pain than the crystallized. But crystallizing cantharidin is a very disagreeable operation, particularly that portion when the hot solution of cantharidin in acetic ether has to be filtered, during which process some cantharidin is volatilized, to the great discomfort of the operators. The crystals obtained are usually lamellar, and possess an odor of acetic ether even after drying.

Dieterich has found that when cantharidin is combined with soap its action is delayed, but the accompanying pain is diminished.

Testing Thermometers.

There are various ways to test the correctness of thermometers. The safest plan is to compare them with a standard thermometer—that is, one of which the errors are exactly known under certain conditions of barometric pressure.

This is, however, frequently impossible. In such cases the following method, described by Victor Meyer and P. Jacobson (in their new "Lehrbuch d. organ. Chemie," i., 117), may be used. This consists in observing the reading of the mercury in melting ice (at 0° C., and 760 Mm. barometric pressure), in boiling water (100° C.), boiling naphthalin (218.1° C.), and boiling benzophenon (306.1° C.). The two last-named bodies may easily be procured in a pure state. The experiment must be conducted in a long-necked flask, so that the whole mercurial column involved in the test is immersed in the boiling vapor. Since it is not always possible to work at the normal barometric pressure, the following table will indicate the corresponding temperatures at other pressures:

Barometric Pressure.	Boiling Water.	Boiling Naphthalin.	Boiling Benzophenon.
720 Mm.	98.5	215.7	303.5
725 "	98.7	216.0	303.8
730 "	98.9	216.3	304.2
735 "	99.1	216.6	304.5
740 "	99.3	216.9	304.8
745 "	99.4	217.2	305.2
750 "	99.6	217.5	305.5
755 "	99.8	217.8	305.8
760 "	100.0	218.1	306.1
765 "	100.2	218.4	306.4
770 "	100.4	218.7	306.7

Dieterich's Process of Opium Assay.

In the last issue of the *Helfenberger Annalen* (1890), which has just come to hand, Mr. Eugene Dieterich furnishes further contributions toward our knowledge of methods of assaying opium.

The new experiments there detailed were undertaken chiefly for the purpose of testing the statements made by Looff, that potassium carbonate was a better agent for causing the separation of morphine than ammonia water. He also recommended to remove the calcium present by means of oxalic acid, and then to separate the narcotine by adding the potassium carbonate in large excess, followed by filtration within half a minute to prevent separation of morphine, etc.

Regarding these points, Dieterich comes to the following conclusions, which are based upon experiments detailed by him in his paper:

1. Addition of oxalic acid for the separation of calcium, in Looff's method, is superfluous. On adding potassium carbonate to the aqueous extract of opium *not* containing oxalic acid, not a trace of calcium carbonate is precipitated, even when a great excess of potassium carbonate is used.

2. The addition of a large amount of potassium carbonate at one time was shown to be rather a drawback, since morphine was proven to begin to separate if the filtration was not completed within half a minute, and filtration in most cases takes a longer time.

Other features of Looff's method may be passed over here, excepting *one* which was found advantageous by Dieterich and has been adopted by him, thereby shortening the assay very materially. This feature is one which Dieterich himself originally drew attention to, but which he did not incorporate into his process. It is this, that the final mixture of opium extract, acetic ether, and dilute ammonia is to be energetically shaken during ten minutes.

Dieterich's New and Shorter Process of Opium Assay.—Triturate 6 Gm. of opium in fine powder with 6 Gm. of water, dilute, and wash the mixture with water into a tared flask, and add enough water to make the contents weigh 54 Gm.

Allow this to stand for fifteen minutes, frequently shaking, then filter through a folded filter of 10 Cm.

To 42 Gm. of the filtrate add 2 Gm. of a mixture of 17 Gm. ammonia water (0.960) and 83 Gm. water, mix well by rotation (do *not* shake up and down), and filter at once through a ready prepared folded filter of 10 Cm.

Put 36 Gm. of this filtrate into an exactly tared flask, add to it 10 Gm. of acetic ether, mix by rotation, and then add 4 Gm. of the above dilute ammonia. Cork the flask and shake energetically during ten minutes.

In order to separate the emulsion which has been produced by the shaking, add at once 10 Gm. of acetic ether, then pour off the ethereal layer cautiously and as far as possible, again add 10 Gm. of acetic ether, and pour off again. Then transfer the contents of the flask, upon the surface of which there is still a shallow ethereal layer, and without attempting to detach the crystals adhering to the inside of the flask, upon a smooth filter of 8 Cm., and, lastly, wash flask and filter with two successive portions of 5 Gm. of water saturated with acetic ether.

Allow the flask and the filter to drain, then dry both at 100° C., transfer the contents of the filter into the flask by means of a camel's-hair brush, and dry to a constant weight.

Dieterich states that he shall adhere to acetic ether (which was replaced by ethylic ether in the last German Pharmacopœia), since this yields a whiter morphine.

Should the full amount of filtrate (42 and 36 Gm.) directed in the above process not be obtained, it is only necessary to apply a little pressure upon the contents [a piece of filtering paper is best put on top first] by means of a glass rod.

Regarding the different alkalies or alkali carbonates which have been recommended or are available for the final separation of morphine, Dieterich shows that their solvent power over morphine already separated from opium is by no means in proportion to the same power over it while yet a constituent of opium.

One (1) part of morphine requires for solution the below-named parts of the (*a*) normal volumetric and (*b*) one-tenth normal volumetric solutions of the following alkalies and their carbonates:

	Normal.	One-tenth Normal.
Ammonia Water	19°	505
Ammonium Carbonate, clear	2,500	3,300
Ammonium Carbonate, white	2,500	3,125
Potassa, caustic	.....	36
Potassium Carbonate	264	500
Potassium Bicarbonate	2,500	4,166
Soda, caustic	.....	30
Sodium Carbonate	714	1,111
Sodium Bicarbonate	2,272	3,125

According to these figures, potassium carbonate is about equal to ammonia, and the bicarbonates of potassium and sodium might be expected to be still more efficient. But experiment showed the remarkable fact that an opium yielding with ammonia water 14.05 to 14.12 per cent of morphine, yielded with the other alkalies, etc., a lesser quantity—with some of them an enormously reduced percentage:

With	After standing 6 hours.	After standing 12 more hours.
Potassium Carbonate	12.50 12.95	....
Potassium Bicarbonate	2.62 2.05	2.02 3.01
Sodium Carbonate	13.10 12,80	....
Sodium Bicarbonate	3.62 5.50	5.12 3.50
Ammonium Carbonate (clear)	6.05 6.62	....

It follows, therefore, that the solvent power of alkalies over morphine is independent of their relative power of separating morphine from opium.

Regarding the time during which the shaking should be continued in the last step, Dieterich advances experimental proof that shaking during ten minutes invariably causes a small but decided increase of morphine over agitation during only five minutes. The increase amounted to 0 11 to 0.34 per cent of the total amount of morphine separated.

Ethyl Bromide and "Ethylene Bromide."

Donoth has recently proposed the employment of dibromide of ethylene, often called, for brevity, bromide of ethylene [German, Æthylenbromid], as a remedy in epilepsy, he having found it quite efficacious in doses of 1½ to 5 grains, given several times a day. It is, however, necessary to give *a warning* respecting its use. Several accidents are on record, caused by this substance having been given, through mistake, instead of ethyl bromide, which is a narcotic and anæsthetic, itself by no means free from danger when used by inhalation.

Ethyl bromide is prepared from alcohol by acting upon it with iodine in the presence of phosphorus.. The formula of the compound is C_2H_5I. It is a colorless, very volatile liquid, having a powerful ethereal odor, and a sweetish and warm taste. Its specific gravity is 1.1419 at 15° C.

Ethylene bromide (or dibromide) has the composition $C_2H_4Br_2$. It is prepared by heating the preceding with bromine, under pressure, to a temperature of 180° C. Below 9.5° C. it is a crystalline solid. At the ordinary indoor temperature it is a liquid, specific gravity about 2.200 at 15° C., and boiling at 131.6° C.

Chemically Pure Zinc—According to the investigations upon the "chemically pure zinc" of the market, made at the Imperial German Physico-technical Institute, this article is always contaminated with lead, and frequently also with iron, cadmium, sulphur, phosphorus, arsenic, and many other substances. It has been found that for the purpose of obtaining absolutely pure zinc it is necessary to follow the wet process by electrolysis, and this again by distillation in vacuo.

OFFICERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION ELECTED AT THE NEW ORLEANS MEETING.

Mr. Alex. K. Finlay, the president, came to the United States from Ireland when but a lad, and the following year (1859) began the study of pharmacy in the store of his brother, Thos. K. Finlay, at the corner of Court and Julia streets, New Orleans. In 1867 he became a partner, and in 1874, on the death of his brother, the sole proprietor. He has conducted the business at the same place until the present time.

He graduated in pharmacy at the University of Louisiana in 1873; joined the American Pharmaceutical Association in 1883; was president of the New Orleans Pharmaceutical Association in 1883–4; president of the Louisiana Pharmaceutical Association in 1885; second vice-president of the American Pharmaceutical Association in 1887, and local secretary in 1890. He is a member of the Louisiana State Board of Pharmacy, and chairman of the Health Committee of the City Council, of which he is a member.

Mr. George J. Seabury, first vice-president-elect of the Association, has such excusable objection to being thrust—as it were—before the public gaze, that our reporter has been unable to secure from him even an admission of his having been born (having no personal recollection of the circumstances attending that period of existence, this is, perhaps, but natural). In the light of subsequent events, that fact may, however, be taken for granted. He has, moreover, continued to live in spite of common belief that the truly good die young. Indeed, he has lived very much and miscellaneously as regards residence and occupation; for to say that he is a manufacturer of pharmaceutical and surgical specialties, and that his place of business is New York, would describe his vocation about as ineffectually as would a description of George Washington be as "a native of Virginia and a military man when not otherwise engaged." The events of his life have been so numerous, and his personal acquaintance with pharmacists so extensive, that it will be far easier for us and more interesting to our readers to mention here only a few things not commonly known, and so lighten the labors of the man (of the late twentieth century, we trust) who shall edit his memoirs, and allow his friends to recall other and more familiar details.

The name Sea-Borough (from which the present sire-name was doubtless derived) would indicate an ancestry of roving mariners in the days when Britain's sons were trained to adventure. In this we may trace the foundation of the tendency of the subject of our sketch to remain but a short time at rest in any one place and to be incessantly active and progressive. This characteristic has sometimes been made use of in advertisements by the firm of Seabury & Johnson, in which Mr. Seabury is represented as he appears when on one of his numerous flying trips clothed with winged cap and sandals. The treatment of the subject is of course conventional and avoids the need for changing the costume to suit the fashions for the time in vogue.

Things which have attained to approximate perfection have few attractions for Mr. Seabury. He is inherently and constitutionally a reformer, and the more intricate and unanswerable the problem the greater its charm for him. It was this trait which achieved the method of creating a plaster which would hold on to everything excepting its medicinal ingredient, and, in spite of its adhesiveness in other respects, would yield its strength, when applied to the skin, as readily as its originator delivers himself of an after-dinner speech or a draft for a scheme to regulate price cutting. His line of adhesives does not, however, embrace "sticky fly-paper," for the reason, it may be presumed, that no flies were ever known to light on George J. or his wares, and this would manifestly be a serious defect in this particular instance.

Mr. Seabury's friends have at times been unable to understand the *raison d'être* for a certain solemnity of manner and *ex-cathedra* style of oratory which is an occasional characteristic; but the following extracts from a revised edition of Chambers' Encyclopædia may, perhaps, indicate their origin:

> "Seabury, Samuel, D.D., 1729-96; b. Conn.; graduated at Yale College in 1748; studied medicine and theology in Scotland; ordained in London in 1758; pastor of churches in New Brunswick, N. J.; Jamaica, Long Island; Westchester, N. Y., 1756–75; suspected of being the author of some Tory pamphlets, was imprisoned for a while in New Haven; resided during the Revolutionary War mostly in New York; went to England in 1784, and was consecrated bishop of Connecticut; chosen rector of St. James' Church, New London, Conn.; took part in revising the Prayer-Book and preparing the constitution for the American Episcopal Church which was adopted in 1789.
>
> "Seabury, Samuel, D.D., 1801-72; b. Conn.; ordained priest in the Protestant Episcopal Church in 1827, was missionary on Long Island; professor of languages at Flushing Institute, 1830–34; editor of *The Churchman*, 1834-49; rector of the Church of the Annunciation, 1838–68; professor of Biblical learning in the General Theological Seminary, 1862–72. He published "The Continuity of the Church of England in the Sixteenth Century; *Supremacy and Obligation of Conscience; The Theory and Use of the Church Calendar*.'

With the lives of these two Seaburys before us it is not difficult to trace many resemblances. George J. has also been in England to "take orders," and it is generally understood that he has continued to get them—and large ones at that—ever since. As for missionary work, he is doing it constantly, and does not confine himself to Long Island, as did one of his illustrious predecessors, but preaches the gospel of brotherly love and harmony to every backsliding "cutter" on the continent. His linguistic proclivities are phenomenal.

It would be quite consistent with the foregoing that Mr. S. should have been engaged in the evolution of a plaster with which the creed of any particular church may be incorporated as an active ingredient. As a part of the ceremonial of ordination, each candidate for the ministry may have such one of these theological plasters applied to his back as his conscience at the time may indicate, and thereafter he will give no further trouble. *That* creed will *stick*, and there will be no court of inquiry or episcopal decision required for him. The properties of the plaster will be so adjusted as to slowly transude and permeate the system, and nothing short of actual flaying will admit of theological reformation. A possible difficulty delays for the present the publication of further details of this mode of insuring orthodoxy—that is, the contingency of the wearer of a High-Church plaster-creed applying an agnostic variety to his ventral surface. In such case the antagonistic influences might render his theology somewhat unstable. This involves some further considerations, which may safely be left to the originator of the method.

In conclusion, it may be said that the *legend* of the firm has always been "Sea Bury *and* Johnson!" but of late years the custom has been to See-bury only, and Johnson has become only a tradition—nobody sees him.

Mr. Willard H. Torbert, second vice-president, is a native of Camden, N. Y. After leaving Princeton College, New Jersey, having prepared for the same at the seminary in Fulton, N. Y., he entered the drug business with Kenyon, Potter & Co., Syracuse, N. Y., subsequently purchasing a drug stock at Adams, Jefferson County, N. Y., from which point he removed to Dubuque in 1868, where he has built up what is now one of the largest drug trades in Iowa.

This house does a large jobbing trade, supplying numerous customers in the Northwestern States and Territories; and it is proper to state that their valuable business has been acquired through the excellent character of the goods handled. Mr. Torbert has always made it a special aim to keep up the standard of his articles, and send out only such as are of known purity. This, combined with favorable prices and honorable, courteous dealing, has made his trade what it is, large and successful. His store is centrally located in the city of Dubuque, is large, elegantly fitted up, richly and abundantly furnished, and from cellar to upper story is supplied with a heavy stock, with warehouse literally packed with goods. The retail department does a satisfactory business, and is under the general supervision of Mr. Torbert.

Mr. Torbert is president of the Iowa State Pharmaceutical Association, and was unanimously re-elected a second term, an honor never before bestowed in the history of the Association.

In the fall of 1890 he was earnestly besought to accept the candidacy for Secretary of State, but positively declined to be considered a candidate, and is now frequently mentioned throughout the State as an available candidate for Governor. But Mr. Torbert is so devoted to his business and the interests of pharmacy that political honors are not a temptation to him, and he positively refuses the use of his name in connection with any office, uniformly saying "that he is only in politics for his friends, for himself nothing."

As a writer he is strong and clear, and in Iowa as an after-dinner talker is known as Iowa's Chauncey Depew.

Dr. Charles Rice, reporter on Progress of Pharmacy, was born at Munich in 1841, of Austrian parents, the father's family name being Reis, in another (Vienna) branch Reiss. Two brothers of his father, who had settled in the United States between the years 1836 and 1839, adopted the English method of spelling the family name, and it was at the advice and desire of his only surviving uncle, then engaged in business at Green Bay, Mich., that the subject of this notice adopted the same spelling when coming to this country. He received his education in public and private schools and in seminaries at Passau, Vienna, and Munich. Having, at an early age, special opportunities of acquiring a knowledge of various languages, one of his relations being an accomplished classical scholar and master of several Oriental languages, he felt drawn towards linguistic studies, receiving encouragement and special instruction from several prominent scholars, among them Dr. Gaugengigl, of Passau, and Prof. Marcus Jos. Mueller and Abbot Hanneberg, of Munich. A financial crash having crippled the resources of his parents, so as to render it necessary for him to seek a more remunerative livelihood, he was urged by his uncle to come to the United States, and to prepare himself as far as possible for a professional and technical career, which advice he followed, receiving aid and assistance from Prof. Winkler, Dr. Stein, Prof. Wittstein, and others. The death of his parents having finally thrown him upon his own resources, he proceeded first to England, and afterwards took passage to this country. The War of the Rebellion being then (1862) in active progress, he entered the U. S. Navy, on board the sloop-of-war *Jamestown*, commanded by Captain Cicero Price, lying at Philadelphia and bound for a cruise around the world. Having received the appointment as surgeon's steward (equivalent to apothecary), and the vessel having terminated its long and interesting cruise by its arrival in San Francisco in the fall of 1865, he was honorably discharged the service and returned to New York, where he at once entered the service of the Department of Public Charities and Correction. Being appointed apothecary of the Bureau of Medical and Surgical Relief, when this was first organized, he was subsequently promoted to a similar position at Bellevue Hospital; and having meanwhile continued his chemical studies under competent instructors, he received the appointment of chemist at the General Drug Department, and finally chemist of the Department of Public Charities and Correction, which office he now holds, in addition to that of superintendent of the General Drug Department, as successor to the late John Frey. In 1867 he became a member of the College of Pharmacy, and was elected a trustee in 1870, serving as such up to the present time. In 1872 he came very near losing his life by the explosion of an apparatus whilst making apomorphine. In 1877 he became chairman of the Pharmacopœia Committee of the Amer. Pharm. Assoc., which drafted the report adopted by the convention of 1880 as the basis for the Sixth Decennial Revision. He was also elected a member of the Committee of Revision and Publication, and became its chairman. By the Pharmacopœial Convention of 1890 he was placed upon the present Committee of Revision, which latter again elected him chairman. In 1879 the University of the City of New York conferred upon him the honorary degree of Doctor in Philosophy, and in 1890 the New York Academy of Medicine elected him an Honorary Fellow. Since 1876 he has been Associate Editor of this journal.

While his contributions to pharmaceutical literature are voluminous, the duties of his position in the Department of Public Charities and Corrections have, of late years, prevented his attendance at meetings of the A. P. A., excepting when they were in the neighborhood of his home. His familiarity with ancient and various modern languages has enabled him to render service to his friends on many occasions; but the engrossing nature of other duties leaves him little time at present for their study, which used to be a welcome recreation, and made him then an active member of several Oriental Societies.

When the ideal Pharmacopœia has been elaborated, Dr. Rice may, perhaps, find time to cultivate a further acquaintance with them. How he will be able to report to the A. P. A. the Progress of Pharmacy in addition to what he has already undertaken, is not readily apparent.

Mr. Carl Svanté Nicanor Hallberg, the chairman of the present Section on Scientific Papers, and the secretary of the preceding Section, came from Sweden to this country with his parents in 1869, when he was thirteen years old. He was born in Helsingborg on October 13th, 1856, and began his attendance at school when only four years of age. At nine he entered the "Gymnasium," or High School, and continued there until his immigration. His first residence here was at Altoona, Pa., where he entered the drug business the following year. After an apprenticeship of four years he became a student in the Philadelphia College of Pharmacy, graduating in the "Centennial" class of '76, and, taking the immortal Greeley's advice, went West. Recognizing the great future of the "City by the Lake," he settled in 1877 in Chicago, which has since been his home. The next year appeared his contributions to the *Chicago Pharmacist*, and from 1879 to 1885 he engaged in the manufacture of pharmaceutical preparations, contributing, meanwhile, many papers to pharmaceutical journals, notably on "Powdered Extracts" and "Pharmaceutical Preparations of Ergot." In 1884 he became a writer for the *Druggist*, which, embracing the *Chicago Pharmacist* in 1886, became the *Western Druggist*, of which he is the editor. About 1885 he originated a postal system of instruction for pharmacy students as a preliminary to college attendance, which resulted in the establishment of the National Institute of Pharmacy, and has provided a course of reading for several thousands of young men, many of whom are not in a position to enable them to attend a college of pharmacy.

He was the original Illinois member of the National Formulary Committee, and since its completion has been a "member-at-large."

At the Pharmacopœial Convention at Washington in 1890 he was elected a member of the seventh decennial Committee of Revision and Publication. In the same year he was elected secretary of the Illinois Pharmaceutical Association, of which he is a charter member and an active worker on important committees. From 1887 to 1889 he was associated with Mr. C. L. Feldkamp in the retail drug business, the firm being the recipient of the gold medal offered by the American Pharmaceutical Association in 1888 "for the best exhibit by a retail pharmacist of preparations of his own manufacture."

He has been actively associated with the Chicago College of Pharmacy for more than ten years, and served an unexpired term as trustee. In 1890 he was elected lecturer and demonstrator in pharmacy to fill a vacancy created by the resignation of the faculty. Aside from pharmacy, he takes an active interest in questions of political economy, and was one of the chief promoters among Chicago pharmacists of the project of holding the next World's Fair in that city.

The Opium Monopoly in the Dutch Indies.

Not only the Government of British India, but also that of the Dutch-Indian colonies, derives a very large proportion of its revenue from opium. In the Dutch colonies no opium is grown, but the sale is the monopoly of the Government, who import the whole of the quantity to be consumed, and retail it at their own price to keepers of opium houses (mostly Chinese).

Recently the Chinese opium dealers at Deli, in Sumatra, where the famous tobacco plantations are situated, have sent in strong complaints of the quality of opium supplied by the Government. They state that, instead of the smoking opium, solutions of morphia are being sold in vials containing 60 Gm. of liquid to about 0.02 to 0.03 Gm. of morphia. The solutions are cheaper than smoking opium. The dealers are now petitioning the Government to prohibit this traffic, especially on the ground that the quantity of morphia present in each vial is sufficient to cause death, or, at any rate, severe symptoms of poisoning.

The opponents of the opium traffic, however, defend the sale of the solutions, for the reason that the opium smokers, by using them instead of the opium, are gradually weaned from the practice of taking opium.—*Chem. and Drugg.*

Detection of Oil of Camphor when Used as an Adulterant.[*]

BY A. B. STEVENS.

In 1888 the writer presented to this Association a test for the detection of oil of camphor when it is used in the adulteration of oil of peppermint. The test, with a slight modification, is as follows:

Place a drachm of nitric acid (specific gravity 1.42) in a test tube, add 1 drop of the suspected oil, and agitate gently. The color of the mixture may vary from light yellow to red. If the oil is pure the red color will disappear in from twenty minutes to two hours. If oil of camphor is present the red color will remain for twenty-four hours, and even longer, if not exposed to too strong a light. This test is reasonably delicate, as less than 5 per cent of oil of camphor may be detected by it.

Since the paper of 1888 numerous tests have been made to ascertain to what extent it can be relied upon for the detection of oil of camphor in other volatile oils. The greatest difficulty encountered was in obtaining perfectly pure oil. In some cases they were necessarily obtained by distillation. For a year or two all of the oil of cajuput met with gave results similar to those of oil of camphor. Indeed, one manufacturer stated that pure oil of cajuput would always give similar results. However, since that time I have found two samples of oil of cajuput, neither of which gave the test for oil of camphor; one of these samples was from an original package from J. E. Davis & Co., and the other was presented by the agricultural department. It is, therefore, a reasonable conclusion that the test may be relied upon for the detection of oil of camphor when present in oil of cajuput, and, further, that nearly all of the oil of cajuput of the market is adulterated with oil of camphor.

By numerous experiments it has been ascertained that this test may be relied upon for the detection of oil of camphor in the following volatile oils, viz.: Orange peel, orange flower, erigeron, lavender flowers, rose, juniper wood and berries, cedar wood, hemlock, lemon, lemon grass, thyme, cajuput, citronella, eucalyptus, anise, rosemary, caraway, bergamot, cloves, coriander, cassia, and cinnamon. Pimento gives a red color almost identical with oil of camphor, but the reaction is exceedingly violent and gives off dense brown fumes. Oil of nutmeg gives similar results. Strong sunlight will completely bleach out the red color produced by oil of nutmegs in less than an hour, and that produced by pimento in four hours, while that produced by oil of camphor requires twelve hours.

The only oil I have thus far found that gives identical results with oil of camphor is oil of sassafras, and these two oils are somewhat similar, as both contain saffrol.

University of Michigan.

Mackenzie's Eye Lotion.

Corrosive Sublimate	1 gr.
Chloride of Ammonium	6 gr.
Cochineal	1¼ gr.
Alcohol	1 fl. dr.
Water	8 fl. oz.

Mix, and filter after twelve hours.

This formula is given by the *Chem. and Drugg.* Though it is meant there for British weights and measures, it will make scarcely any difference if our measures are used.

The Volatility of Creosote.—A. Reissmann has observed that when creosote is exposed to the air in a watch glass, it loses 65.6 per cent of its original weight during four weeks, by evaporation. Creosote pills coated by butter of cacao, and also kept during four weeks in a paper box, lost 22.4 per cent of creosote, and sugar-coated creosote pills 5.6 per cent. This shows that the volatility of creosote is considerable. Up to the present, therefore, the capsule appears to be the best vehicle for administering creosote [or else the gelatin-coated pill]. If creosote is to be dispensed in uncoated or sugar-coated pills, the latter should at least be kept in glass vessels.—*Pharm. Centralh.*

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[*] Paper read before the American Pharmaceutical Association.

Lead Plaster vs. Lead Oleate.*

BY A. B. STEVENS.

The successful manufacture of lead plaster requires hours of almost constant watching; should it be left for a time without stirring, oxide will collect on the bottom into a compact mass, and is with difficulty disintegrated. The heat used is another source of difficulty; the heat of a water bath is insufficient, and a sand bath or direct flame is apt to burn the plaster. No exact degree of temperature can be established, as the olive oil and lead oxide taken separately will bear a much higher degree of heat than after they have combined to form an oleate. Therefore a decreased temperature should be employed toward the close of the operation.

The Pharmacopœia requires that lead plaster shall be white. This requirement should be changed, for though we may obey the spirit of the requirement, and obtain a very light-colored plaster, we cannot obey the letter of the requirement and obtain a perfectly white plaster.

In view of the above considerations, would it not be well to discard lead plaster and introduce in its stead lead oleate, which is easily and quickly made according to the directions given in the National Formulary?

With this thought in mind, I have prepared lead plaster and lead oleate, and also diachylon ointment made from each, which I here present for your consideration, with other samples, as follows: Lead plaster and diachylon ointment made by the U. S. P. method from pure olive oil, from commercial olive oil, also from cottonseed oil. It seems to make very little difference in the result whether pure oil or cottonseed oil is used in the manufacture of the plaster. Samples of diachylon ointment were made from oleate and from lead plaster, substituting white petrolatum for olive oil; substituting, also, liquid petrolatum for the olive oil. The ointment made with the latter ingredient is too soft, while that made with petrolatum is of good consistence, and I am inclined to believe that it would be an improvement on the U. S. P. ointment.

The sample of olive oil used in these experiments was presented by General George W. Hooper, of Sobra Vista, Cal., and was expressed from olives grown upon his own olive farm. It is one of the finest oils the writer has ever seen.

University of Michigan.

Syrup of Lactucarium.*

BY G. H. CHARLES KLIE, ST. LOUIS, MO.

The present formula reads as follows:

Fluid Extract Lactucarium	5 parts.
Syrup	95 "
To make	100 parts.

Mix them.

The first step in making syrup of lactucarium is to make the fluid extract.

The formula is:

Lactucarium in coarse pieces	100 Gm.
Ether	100 Gm.
Alcohol,	
Water	each a sufficient quantity.

To make 100 C.c.:

Add the lactucarium to the other contained in a tared flask having the capacity of 600 C.c., and let it macerate for twenty-four hours; then add 300 Gm. of water, and shake the mixture well. Fit a bent glass tube into the neck of the flask, and, having immersed the glass in hot water, recover the ether by distillation. When all the ether has distilled over, remove the tube, and after thoroughly shaking the contents of the flask, continue the heat for half an hour. Let the mixture cool. Add 100 Gm. of alcohol, and enough water to make the whole mixture weigh 500 Gm. After maceration for twenty-four hours, with occasional agitation, express and filter the liquid. Return the dregs to the flask and macerate them with 200 Gm. of a mixture of alcohol and water, made in a proportion of 1 part of alcohol to 3 parts of water; repeat the maceration 2 or 3 times successively with fresh portions of the mixture, until the dregs are tasteless, or nearly so. Mix the liquids thus obtained, and concentrate them by means of a water bath (the first-expressed liquid by itself) until the combined weight of the liquids is 60 Gm.; mix the liquids, add 40 Gm. of alcohol, and let the mixture cool in the evaporating vessel, stirring the mixture frequently, and during the intervals keeping the vessel well covered. When cool add enough alcohol to make the mixture weigh 100 Gm.; transfer the liquid to a flask, and add enough water to make the mixture measure 100 C.c., using the water so required to rinse the evaporating vessel. Shake the mixture occasionally during several hours (and frequently, if a portion of the precipitate is found to be tenacious), and when a uniform mixture results set it aside for twenty-four hours, so that any precipitate formed may subside. Decant the clear liquid, transfer the precipitate to a filter, and, after thoroughly draining it into the decanted liquid, wash it well with a mixture of alcohol and water, made in the proportion of 3 parts of alcohol to 4 parts of water, until the washings pass tasteless. Concentrate the washings by evaporation to a syrupy consistence, mix with the decanted liquid, and add enough of the last-named mixture of alcohol and water to make the whole measure 100 C.c. Lastly, after twenty-four hours, having meanwhile shaken the fluid extract occasionally, filter it through paper.

I believe the average druggist, when he reads the formula, will hesitate and consider whether to make the extract or not, and will generally arrive at the conclusion that he will not. He then buys the fluid extract and mixes it with simple syrup as directed. This is about the shortest way when he does not want to buy the syrup outright.

I have prepared the fluid extract a number of times, and have found difficulties which I wish to state here.

When the quantity of lactucarium as given in the formula has been exhausted with the prescribed menstruum, the directions say: "Concentrate the tincture—first portion separately—until the combined weight is 60 Gm." At this stage quite a quantity of resin is found in the evaporating dish. Here is the critical part of the process. Shall the resinous matter be separated or not? If you leave it in the dish, the syrup made from the resulting extract will be turbid; if you separate the resin, the resulting syrup will be clear. The wording of the formula seems to imply that the resin is not to be separated, but, on the other hand, if you want a clear syrup it ought to be separated. It would be well for the Pharmacopœia to state clearly its intention by saying, for instance: "Do not separate the resinous precipitate," etc. It would thereby be made perfectly clear that a perfectly clear syrup is not wanted. But since many physicians want a clear syrup—in fact, it seems that more physicians want the clear than the turbid syrup—a formula might be added to make a clear syrup.

The syrup made from the fluid extract with the resin in it, of the present Pharmacopœia, is somewhat clearer than the syrup made according to the Pharmacopœia of 1870.

I would propose the following formula:

Take of

Lactucarium	5 parts.
Sugar	5 "
Syrup	100 "
To make	100 parts.

Rub the lactucarium and sugar together to a coarse powder, add this to the syrup contained in an evaporating dish. Place on a vapor bath and keep the temperature at 140° F. for six hours. Strain while warm, and add sufficient water to make the product weigh 100 parts.

It will take, say, seven hours to make the syrup according to this formula, whereas it will take seven days to make it according to the formula of the Pharmacopœia.

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* Paper read before the American Pharmaceutical Association.

The Drug Trade of To-day and the Pharmacopœia.*

BY JOHN COALTER MEANS, NATCHEZ, MISS.

THE question is sometimes asked: "Is the Pharmacopœia becoming obsolete?" And as startling as the inquiry sounds, the tendencies of the times seem to justify it. Many physicians seem scarcely aware of the existence of such an authority, and prescribe the modern "proprietary remedies" and "pharmaceutical specialties" almost to the exclusion of legitimate pharmacopœial preparations. Many pharmacists seem equally ignorant in this respect, and depend on the manufacturing establishments for most of their stock, and, for the few preparations they compound themselves, refer to the convenient label on the fluid extract bottle of the manufacturer instead of to the Pharmacopœia—never thinking whether or not the products they dispense conform to any authoritative standard.

As to the manufacturers, how few of them seem to regard the Pharmacopœia! In their kind efforts to relieve the poor, overworked retailer, they furnish those very convenient concentrated fluids which are supposed to produce, by dilution with suitable menstruums, completed pharmacopœial preparations; but how often is it the case that the product so made is widely different from what it should be in appearance and character!

The causes of this condition of affairs are numerous. Prominent among them is the character of the present Pharmacopœia.

Were that work of a more practical character, and better adapted to meet the wants of the modern drug trade, it would be much more used than it now is. The modern "elegant pharmaceuticals," so assiduously pushed by the manufacturers, have probably done more than any other cause to displace the Pharmacopœia, and it is to this class of preparations that the Committee of Revision should give their attention.

Palatability seems to be an essential in modern pharmaceuticals, and it is certainly an invaluable aid in therapeutics. This should be recognized and regarded in the preparation of remedies whenever it can be done without detriment to the therapeutic value.

That the retailer is also to blame is indisputable. Were he more zealous in compounding and dispensing pharmacopœial products, and in advertising them to the physicians, he would be better able to cope with the modern "proprietary remedies" which are thrust upon him by the manufacturers and prescribed by physicians.

For instance, how few doctors use the deodorized tincture of opium, and how many proprietary preparations of similar character, but of extravagant cost and doubtful worth, are daily presented? How many highly extolled syrups of the hypophosphites are used, almost to the exclusion of a meritorious officinal article?

Now, if the pharmacist would prepare these and similar preparations, and advertise them to physicians (for this is an age of advertising), by samples or otherwise, they would be much more largely used, to the benefit of the patient and profit of the druggist.

That the modern manufacturers have done good work for medical science is undeniable. They have also relieved the retailer of much disagreeable work, formerly incumbent upon him, and, at the same time, improved the products; but when they propose, as some of them now do, to set up pharmacopœias of their own, and to dictate to the physician what he shall prescribe, and to the pharmacist what he shall dispense, it is certainly going a little too far. Shall the coming druggist, through their influence, become a mere mixer and tradesman, simply a servile distributer for these manufacturers, not knowing the constituents of the articles he dispenses, nor their mode of preparation?

As a suggestion to the Committee of Revision of the coming Pharmacopœia, I would submit this: Why direct that tincture of opium shall be made from the powdered drug? Would it not be much more practical to prepare it from the crude "gum," and then assay by alkaloids, or (if that is considered too difficult for the average druggist) by amount of dry extract (even this would produce a more constant preparation than the present formula), and bring to a prescribed standard? As it is now, probably ninety-nine out of a hundred druggists throughout our country prepare this tincture from the crude "gum" without making it conform to any standard. In the face of this, why should the powder be required? Let us consider the process for preparing tincture of opium as now required. First the gum is deprived of its water and powdered with considerable labor and expense, and then water is added to this powder. Why is it necessary to deprive an article of one of its constituents and then add the same ingredient to it? Certainly this is needless labor and expense.

I hope the present revision will bring the Pharmacopœia up to the present day in every respect, and dispense entirely with obsolete preparations and antiquated methods; recognizing and complying with the demand for modern pharmaceutical remedies and preparations, making it what it should be—the authority for all preparations prescribed by American physicians and dispensed in American pharmacies.

But no matter how excellent the work is made, unless we, the pharmacists of the United States, give it our hearty support and respect, it cannot accomplish its purpose.

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* Paper read before the American Pharmaceutical Association.

Medicated Oils for Hypodermic Injection.

SEVERAL fixed oils, particularly those of olive and almonds, have for some time past been used by numerous European practitioners as vehicles for the hypodermic administration of certain remedies, and to some extent this has also been practised in this country.

In a recent issue of *Le Progrès Thérapeutique*, A. Vicario points out the necessity of carefully sterilizing the respective liquids, and gives various practical hints, which we give here in abstract.

Preparation of the Solutions.—This is either made by simply mixing the ingredients, if liquid, or by producing solution by means of a water bath, in which latter case the most volatile substance must be added after the others have become liquid.

Sterilization of the Solutions.—The liquid is placed in a sterilizing flask. [Pasteur's retort or Chamberland's pipette flask is mentioned by the author. Any bottle with long and narrow neck, which may be stoppered with a pellet of cotton, may be used.] The flask is then heated in a sterilizing oven at a temperature of 120°.

Filling into Bottles.—The liquid is now transferred, under proper precautions, into previously sterilized small bottles. If a Chamberland's flask is used, which has a bent neck and is drawn out to a fine tube fused at the end, the latter is broken off after sterilization is completed, the tube pushed through the cotton stoppers of the small bottles, and the liquid thus transferred without risk of re-introducing germs or bacteria.

Formulas.—The most usually employed preparations, which are particularly used in *phthisis*, are the following:

Picot's Solution.

Guajacol	5 Gm.	75 grains.
Iodoform	1 Gm.	15 "
Olive Oil, Liquid Vaseline, āā eq. parts to make	100 C.c.	3⅓ fl. oz.

Pignol's Solution.

Eucalyptol	14 Gm.	216 grains.
Guajacol	5 "	75 "
Iodoform	1 "	15 "
Olive (or Almond Oil), to....make	100 C.c.	3⅓ fl. oz.

Morel-Lavallée's Solution.

Eucalyptol	12 Gm.	185 grains.
Guajacol	5 "	75 "
Iodoform	4 "	60 "
Olive Oil,.....to make	100 C.c.	3⅓ fl. oz.

The hypodermic dose of these solutions is from 3 C.c. to 12 C.c. (50 to 210 minims) in twenty-four hours. Besides the above, there are also in use plain solutions, in olive or almond oil, of creosote (1 : 15), eucalyptol (2 or 4 : 10), etc.

Notes on Drugs and Chemicals.

(From the April Report of Gehe & Co., of Dresden.)

Cinchona Barks.—In spite of the reduced export of bark from Ceylon during 1890, the price fell still lower instead of advancing. The present extent of cinchona culture, and the improvements in the quality of the trees —some of them yielding as much as 9 per cent of alkaloid —make it unlikely that there will be any advance. The situation of the cinchona growers is a very unsatisfactory one, over-production having been the cause. With a view of remedying this somewhat, the Java Government ordered the destruction of *two* millions of cinchona trees upon four plantations. Yet even this is not expected to do much good. For the manufacture of quinine the only barks now relied upon are those from Ceylon and Java. While the export from the former is constantly diminishing,

1885	14,097,142 lbs.
1886	14,888,402 "
1887	11,996,039 "
1888	13,251,120 "
1889	9,433,715 "
1890	8,655,990 "

that from Java is steadily increasing, from 4,360,000 pounds in 1888 to 7,184,000 pounds in 1890.

Quillaja Bark.—Since last fall this article has advanced in price, and probably all new supplies now in transit are already sold. The Chilian war is likely to prevent new shipments for some time.

Musk, natural and artificial.—Perfumers are gradually losing their faith in the artificial musk (musk "Baur"), which has now been in use for some time. While it is certainly more economical in the beginning, it has the disadvantage that it loses its odor after a short time.

Some time ago certain journals made the statement that sulphate of quinine was an efficient reagent—added to a liquid containing musk or its odor—to ascertain whether natural or artificial musk had been used therein. It was said the sulphate of quinine destroyed the odor, if it was artificial musk. Gehe & Co. now inform us that this is a mistake, but that *hydrochlorate of quinine* destroys or masks the odor of *natural musk*. On the other hand, ethereal oil of bitter almonds and other substances containing hydrocyanic acid neutralize the odor of *artificial musk*.

Opium.—The depressed condition of the market in Asia Minor still continues, and there is no prospect of a relief. The next harvest promises to be an extraordinarily good one, and this is one of the reasons why purchasers withhold orders. Many holders of stock will no longer be able to keep it. According to reports from Constantinople, about 90 per cent of the opium on storage there has been hypothecated to banks and other financial institutions. Naturally, these lots will, sooner or later, come under the hammer by sheer necessity. It seems, therefore, that prices may go lower still, though the market has become a little stiffer in consequence of considerable orders from the United States.

Mexico is said to make earnest efforts towards the cultivation of opium, chiefly with a view—so it is said—of supplying the Chinese market, which might raise a dangerous competition against India.

Tea.—The enormous advance which Indian teas have made during the last few years may be seen from the fact that the imports of tea into Great Britain during 1889 amounted to:

93,203,927	lbs. of Chinese tea.
34,246,224	" Ceylon "
101,052,264	" India "

[The two latter are mostly consumed in England, and are gradually displacing the Chinese teas. A notable quantity of East Indian teas is also consumed in this country.—Ed. Amer. Drugg.]

Guajacol and its Derivatives.—It was announced some months ago that several derivatives of guajacol were about to be introduced as supposed efficient remedies in phthisis, as substitutes for plain guajacol. Benzoyl-guajacol has been thus introduced under the name benzosol. Recently a salicyl-guajacol and a styracyl-guajacol have been added. Gehe & Co. believe that there is a chance for these remedies, since the treatment of phthisis by creosote has recently been revived by Sommerbrodt.

Benzosol is given in doses of 15 to 30 grains; even as much as 150 grains per day have been borne without bad effects.

Cornutine.—Both the alkaloid (from ergot, after Kobert) and two of its salts, the hydrochlorate and citrate, are now available. The dose is 5 Mgm.

Glycerin.—The new German Pharmacopœia contains a test (supposed to be for acrolein) which is as follows:

"On heating 1 C.c. of glycerin with 1 C.c. of water of ammonia to boiling, and then adding 3 drops of solution of nitrate of silver (1 in 20), neither a color nor a precipitate should appear in the mixture within five minutes."

All German manufacturers of glycerin have memorialized the proper Government authorities that they are unable to produce glycerin which complies with this test, as it is too rigorous. This is also affirmed by Gehe & Co., who state that either the test will have to be performed without heat at all, or at least in a water bath at a temperature not exceeding 50 C.

Platinum.—The legitimate increase in the consumption of this metal, for electric purposes, has been greatly exaggerated. It was made the basis of an attempt by certain parties to monopolize the market by purchasing all the Government product in the Ural mines (platinum mining is a Russian Government monopoly). But large quantities of the metal came from Russia in an "indirect" (we would say "underground") way, and large amounts of old-metal were dumped on the market, all of which brought the price considerably down again. Nevertheless, it will be some time before the platinum market will have resumed its normal tone.

Iodophenin: A New Antiseptic.

A. Scholvien has found (*Pharm. Zeit.*, No. 40) that when a cold-saturated solution of phenacetin, acidulated with hydrochloric acid, is treated with iodine, a gray precipitate forms which afterwards appears as a mass of crystalline needles. It forms, when dry, a chocolate-brown powder. When recrystallized from glacial acetic acid, it may be obtained in steel-blue crystals.

In preparing this substance on a large scale, it would be necessary to operate with very large quantities of liquid, if a mere aqueous solution of phenacetin were employed. This is avoided by dissolving the phenacetin in glacial acetic acid, and afterwards diluting with water.

The resulting product, called *iodophenin*, meets at 130° C., decomposing at the same time. It contains one portion of its iodine in a more intimate combination than the other. It is soluble in 20 parts of cold glacial acetic acid, more easily in the same liquid when hot, and is also soluble in alcohol. It is difficultly soluble in benzol and chloroform, and insoluble in water. If heated with water, it is decomposed.

Wittkowsky has found that this substance is a most efficient bactericide. [Further reports regarding it are expected shortly.]

◆

Bromol.—This is the name recently given to the well-known compound, tribromophenol, which is produced when phenol or carbolic acid is treated with an excess of bromine in aqueous solution. It has been found to possess strong antiseptic properties, and to be, at the same time, non-toxic.

Rademaker has recommended it for external use, either dissolved in olive oil (1 in 30) or mixed with vaseline (4 in 30). It may also be applied in form of powder, like iodoform, for sprinkling on wounds. In diphtheria or angina due to scarlatina, the throat may be touched with a solution of 1 part of bromol in 25 of glycerin.

The same author has used the substance internally in doses of $\frac{1}{12}$ to $\frac{1}{4}$ grain, in cholera infantum and typhoid fever with success.—*Chem. Centralbl.*, No. 21.

Are the present Patent and Trade Mark Laws of the United States, as applied to Medicinal Products, in Conformity with Common Law, Common Sense, Justice, or Equity? *

I VENTURE to say that this inquiry suggests considerations of which the vast majority of pharmacists and physicians are wholly ignorant. However, this is not to be wondered at, for there are many existing evils whose magnitude and enormity we only recognize in the abstract until they have been brought home to us by some forcible illustration. How many of my readers, or of the many physicians who swear by an iron-bound code of ethics, have ever stopped to consider the influence of our patent laws upon the progress of the science of medicine? A regularly qualified physician would hesitate a long time before prescribing any of the thousand-and-one nostrums which we classify under the opprobrious title of "patent medicines," and yet every practical dispenser knows to what extent they are daily employing antipyrine, sulfonal, and a host of other articles, unconscious of the fact that their manufacture and sale are monopolized under the protection of our revered and respected "Uncle Sam."

During a recent sojourn in Europe the writer, who was a little sceptical of the sweeping claims to proprietary rights circulated by the "Sole Lessees" of Dr. Knorr's antipyrine, purchased an ounce of this article, brought it home with him, and announced his intention to sell it over the counter as he might see fit. This fact came to the ears of Messrs. Lutz & Movius, and as a consequence I was informed by their attorney that unless I immediately discontinued further effort to sell the article, suit would be brought, as they alone were entitled to handle it within the borders of the United States. I could scarcely believe that their position was tenable, and accordingly sought the advice of an eminent patent attorney. By him I was informed that not only could they restrict me in the sale of the preparation, even though I came into legal possession of it on the other side, but that, further, I could be stopped from even using it, if they saw fit.

Now, do not misunderstand me; I am not asking for space in your journal with a view to criticising Dr. Knorr or his representatives, for, so far as I know, they are estimable gentlemen, and have done exactly as would anybody else who had nothing more than a commercial interest in the matter; but this little incident has served to convince me that our patent laws are sorely in need of revision, and if I can command the reader's attention for a brief space I think I can substantiate this opinion, and perhaps influence others to investigate the matter with the same care that it has received from me.

To a proper comprehension of the whole subject, a clear understanding of the nature of a patent is first necessary. What is a patent, and what is its object? A patent is a grant from the Government, extending over a period of seventeen years, wherein the inventor or proprietor shall enjoy the exclusive benefit of his invention. This system was not inspired by a philanthropic desire to reward the inventor, but in order that, as distinguished from periods antedating the establishment of patents, he should make public the results of his investigations, and not conceal them under lock and key. Were it not for the beneficial effects of the patent system as applied to *mechanics* (and please bear this distinction in mind), the telegraph and telephone systems of to-day would probably never have been developed. Professor Morse might possibly have utilized his device in some small way, and Professor Graham Bell would probably have had a telephone line from his house to his barn; for nothing so much as the prospective pecuniary return actuated these gentlemen to spend time and money in bringing their discoveries to a point of perfection where they are available for commercial purposes.

Keeping the above facts in mind, let us compare the effects of governmental protection in the case of a new medicine.

Suppose, for instance, that the discoverers of quinine had secured a patent giving to them a monopoly of its manufacture. Quinine is not a luxury; quinine is not a device which enables us to sit in an easy chair and conduct business at a distance. It is not to be likened to a machine which weaves us broadcloth at a price correspondingly favorably with the homespun material with which our forefathers clothed themselves; it is resorted to only where human life is endangered, and must therefore be within the reach of all, whether rich or poor. It is not necessary to tell you how great has been the progress in the manufacture of quinine, or to enter into details with reference to the improvements which have reduced its price from $6 or $7 per ounce to 25 cents. How and why is it that this material has been brought down to a price which makes it available to all? Competition. The whole question is answered by that one word. If Pelletier & Cavenou had patented it, is it likely that they would have reduced their price commensurate with a reduction in the cost of manufacture? Of course not. They would very consistently have said that if the Government thought them entitled to a monopoly of the invention, it would certainly concede the right to benefit by any improvements in their original crude process which they might make, and the consumer would therefore simply be obliged to pay an exorbitant profit.

To come right down to our present day, let us look at antipyrine, the particular product which has induced me to submit this communication. Not only has the inventor in this case secured protection for his process of manufacture, but he has also patented the article antipyrine and trade-marked the name. Therefore, it makes no difference by what method you may prepare the article, you will still be deterred from selling it, and competing manufacturers might just as well sit down and fold their hands until the seventeen years covered by the patent grant have expired. Progress as regards the manufacture of this article is as effectually stopped as though the substance had never been dreamed of, and the very purpose, therefore, of our patent laws has been defeated.

Look at pepsin: suppose Dr. Scheffer, who was really the first man to render the manufacture of pepsin commercially practical, had sought a monopoly of his knowledge, would we have had at our disposal to-day pepsins dissolving 2,000 grains of albumen instead of 200 grains as his precipitated pepsin did? What incentive would he have had to carry his investigations further? When a man has an absolute monopoly, such as that enjoyed by the antipyrine people, his interest in the "dear public," if he ever had any, soon disappears, and "let well enough alone" is thenceforward his motto.

We concede that it is perfectly equitable and just to patent an improvement on a process for the manufacture of any medicine, and even secure protection for the specific product of that process with a view to avoiding the competition which would otherwise be felt from its manufacture in foreign countries; but when the discovery, as in the case of antipyrine, involves something entirely new and before unknown, which, by virtue of its peculiar merit, becomes almost a necessity to the practising physician, then such protection is opposed to the simplest instincts of humanity. Imagine that Dr. Koch's lymph had proved all that we were led to expect from the exaggerated newspaper reports of its use; in other words, an absolute cure for tuberculosis. It was something new, therefore in "this" country patentable. Nothing could prevent the inventor from fixing a price of $1,000 per injection, and to the pauper who could not advance money death must come; whereas our industrious mechanics and others of the middle classes would doubtless be mortgaging their homes or whatever property they might possess for a new lease of life.

In conclusion, I would repeat that patents, as applied to an original discovery in the science of medicine, not only defeat their very object, but are opposed to the spirit and letter of the code of medical ethics which distinguishes the regular physician from the charlatan, by the renunciation of all monopoly of his skill or his knowledge. Wherein are professional men distinguished from the peanut vender of the streets, if it is not in the recognition that they are in a measure philanthropists? Their services must be at the command of necessity. Every successful physician believes and recognizes this. A carpenter could say to the sufferer of the Johnstown flood: "I will rebuild your house for thus and so. Satisfy me that you can meet the obligation, and I will begin operations," but a physician who would have approached that catastrophe in any such spirit would have been tabooed by every medical society in this country.

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* Special communication to AMERICAN DRUGGIST.

It is a matter of some regret to find that the United States Government has been so slow in recognizing the facts above set forth. In France or in Germany—the recognized fountain-heads of scientific work—patent rights to any new medicine, or process for the manufacture of same, are absolutely denied. As a consequence, in Germany antipyrine can be bought for a song as compared with the price established here, and for the simple reason that over half a dozen houses are making it. Therefore Dr. Knorr, the original inventor, has seen that in our country he must look for his principal reward. The United States offers a haven of refuge for all pseudo-scientists of Europe, who, as distinguished from Dr. Koch and all other liberal-minded men, seek to prey upon a suffering public for a reward of their labors.

Under the common law a contract which in any way militates against the public interests is illegal, and I fail to understand how it is that our national legislature has neglected this very important matter of patent laws. I therefore close this communication with my original query, "Are the present patent and trade mark laws, as applied to medicine, in conformity with common law or common sense?"

WILHELM BODEMANN.

289 STATE STREET, CHICAGO, May 28th, 1891.

Modern Dermatological Remedies.

THE following information respecting some of the newer forms of external remedies used in the clinic of Professor Hebra, Vienna, is published in the *Pharmaceutische Post:*

Spray Treatment.—Very frequently an ether spray is used as a vehicle for mercuric sublimate (1 to 2 per cent) and chrysarobin (10 per cent). It is considered that the spray, besides its anodyne properties, presents the advantage of attacking affected parts otherwise difficult to reach, such as those covered with hair. Whilst the mercuric chloride spray does good service, principally in affections of the mucous membrane, the chrysarobin spray is used in mycosis of the skin. The apparatus used is one combined with a ball blower.

Medicated Soaps.—The superfatted medicated soaps introduced by Unna are used in a form as improved by Eichhoff. The basis consists preferably of beef tallow, together with Liquor sodæ two parts, Liquor potassæ one part, and some olive oil. The superfatted soaps employed are the resorcin-salicylic, resorcin-salicylic-sulphur, resorcin-salicylic-sulphur-tar soaps. In these forms the resorcin is claimed to develop advantageously its action antagonistic to inflammation; the salicylic acid is said to dissolve the horny layer of the epidermis and to act as a bactericide; the sulphur also lowers the inflammation; while the tar diminishes the itching and favorably influences the dilated vessels.

Glycerinum Saponatum.—This is an ointment basis, containing a large proportion of glycerin, in the preparation of which a small quantity of a neutral cocoanut-oil soda soap is used. Its composition varies from 80 to 92 per cent of glycerin and 20 to 8 per cent of soap. The glycerinum saponatum is soluble in cold and warm water, and is said to possess the advantageous property of dissolving a large number of substances, and of holding other insoluble pulverulent substances in suspension. To this class belong:

A. OINTMENTS WITH AN ACID BASIS (80 per cent glycerin).—(1) Glycerinum saponatum with salicylic acid (5 per cent), employed especially for the removal of horny epidermal growths; (2) Glyc. sapon. with salicylic acid (5 per cent) and resorcin (5 per cent) combines the properties of the preceding with those of resorcin in diminishing the inflammation, acting as an antiseptic, and promoting the regeneration of the epidermis; (3) Glyc. sapon. with salicylic acid (5 per cent) and creosote (5 per cent) promotes healing without pain in lupus vulgaris, lepra, etc.; (4) Glyc. sapon. with salicylic acid (3 per cent) and tar (10 per cent), useful in scaly eczema with itching.

B. OINTMENTS WITH A NEUTRAL BASIS (92 per cent glycerin).—(1) Glyc. sapon. with zinc oxide (5 per cent), used for cosmetic purposes and in slight cases of eczema; (2) Glyc. sapon. with sulphur (10 per cent); (3) Glyc. sapon. with zinc oxide (10 per cent), used in acne; (4) Glyc. sapon. with iodoform (5, 10, to 50 per cent), said to be remarkably active, purifying and promoting granular action in wounds, ulcers, buboes, and carbuncles; (5) Glyc. sapon. with chrysarobin (10 per cent), approved especially in psoriasis; (6) Glyc. sapon. with hydroxylamine (1 per cent), used in psoriasis of the face and hairy scalp; (7) Glyc. sapon. with ichthyol (5 per cent) renders good service in violent itching of skin affections and arthritic swelling of the joints; (8) Glyc. sapon. with ichthyol (10 per cent) and zinc oxide (10 per cent), as in the preceding, and in incipient eczema; (9) Glyc. sapon. with carbolic acid (2 to 3 per cent) is good for disinfecting the hands and also to relieve itching.

In other cases the vehicle represents a kind of dressing. Among the *Pastes*, the zinc-starch-vaseline paste, with corresponding medication, takes a high place. This paste is used with good result in combination with salicylic acid (acid. salicyl., 1–2; zinci oxidi et amyli, āā 25; vaselini, 50). The paste adheres to the face without any bandage; it is also dusted with starch. In the *Traumaticin* treatment, traumaticin (a solution of 1 part of gutta-percha in 10 to 15 parts of chloroform) is used as a medium for applying different remedies, such as chrysarobin, etc. It forms a pliant coating, and surpasses collodion by far in this respect.

Glycero-Gelatin is prepared in three forms: soft (5 per cent gelatin added), hard (10 per cent gelatin and water), and hard (10 per cent gelatin without water). Before using, the preparation is liquefied by heat, and in this condition is spread on to the part affected, by means of a brush, and covered with mull.

In the preparation of ointment and plaster mulls, Unna's recommendation is followed to substitute lard by mutton fat, which renders unnecessary addition of paraffin or wax. The dressings are dipped into the melted mass, dried, and rolled up. The gutta-percha mull is considered to present many advantages.

A new kind of dermatological plaster has been introduced, the basis of which consists of purified india-rubber and anhydrous lanolin worked up together to a remarkably adhesive mass. The mixture is medicated with various substances and spread upon linen, and is then known as *Collemplastrum.* Among the advantages claimed for this kind of plaster are its low cost; that the mass does not separate from the linen; that, while possessing the adhesive properties of india-rubber plaster and lanolin, it favors the absorption of the added medicament; and that the plaster can be readily removed without leaving portions adherent to the skin. Besides the simple Collemplastrum adhæsivum, others are used, containing respectively 10 to 20 per cent salicylic acid, 30 per cent pyrogallic acid, 60 per cent mercury, 60 per cent mercury and 5 per cent carbolic acid, 50 per cent thiol, 40 per cent zinc oxide, 10 per cent liquid pitch, etc., etc.—After *Pharm. Journ.*, May 23d.

Preservation of Syrups.

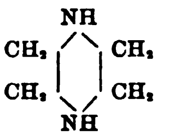
THE following method is recommended by a lady pharmacist (Miss Popelin) in the *Bull de la Soc. roy. de Pharm. de Bruxelles* (April, 1891):

When a syrup is finished, it is transferred, *while hot,* into bottles holding 2 or 4 fluidounces or more. These bottles are completely filled, no room being left for a cork. Upon the mouth of each is then placed a disc of very thick filtering paper, the diameter of the disc being a little larger than that of the mouth of the bottle. These discs become impregnated with the liquid. When the syrup cools, it contracts somewhat, and the paper discs assume a concave shape. The aqueous portion of the syrup taken up by the discs has meanwhile evaporated, and the discs, which are encrusted with crystallized sugar, form an impermeable barrier to the external air and germs contained in it.

Piperazine.

In addition to what we have said upon this subject in previous issues, the following notes will be of interest, in view of the fact that this substance is likely to play a rôle in the treatment of gout and other diseases dependent upon an excessive formation of uric acid.

Piperazine was at one time supposed to be identical with spermine, but has been shown to be different from it. It has the composition $C_4H_{10}N_2$, and its molecule may be represented thus :



It forms shining crystalline plates, melting (when anhydrous) at 104° to 107° C., is very soluble in water and very deliquescent. The aqueous solution, which is almost tasteless, has a strong alkaline reaction, but is not caustic.

The hydrochlorate of piperazine is likewise very soluble in water, less so in alcohol. It crystallizes in silky needles.

Piperazine is remarkable on account of its behavior towards uric acid. A *cold*, aqueous solution of the base will dissolve *twelve times* as much uric acid as an equal amount of lithium carbonate is able to render soluble.

Urate of piperazine, produced by boiling the base with an excess of uric acid, is soluble in water of 17° C. seven times more readily than urate of lithium.

One part of urate of piperazine is soluble in 50 parts of water at 17° C. The solubility of urate of lithium is stated to be 1 in 368.

In its passage through the organism, piperazine is not changed at all, or at least but slightly, since it can easily be detected in the urine after doses of 1 Gm. It makes its appearance in the urine a few hours after it has been taken, but continues to be eliminated, even after only one dose, during about thirty-six hours.

To show the presence of piperazine in a solution, two tests are particularly suitable. On adding to the dilute aqueous solution of its hydrochlorate solution of potassio-bismuthic iodide [Dragendorff's reagent: solution of iodide of bismuth in hot concentrated solution of iodide of potassium, and subsequent addition of an equal volume of a cold-saturated solution of the last-named iodide], a garnet-red precipitate, consisting of microscopic needles, is produced. And on adding to a dilute solution of piperazine some solution of soda, then a drop of benzoyl chloride, and shaking, a bulky, white mass separates.

Detection of Piperazine in the Urine.—Mix about 10 C.c. of the urine with a few drops of concentrated solution of soda, and warm gently for a short time. When cold, filter from the flocculent precipitate, consisting of phosphates, etc., render the filtrate distinctly, but not excessively, acid by hydrochloric acid, and add solution of potassio-bismuthic iodide. At first there will be produced a muddy-looking, amorphous precipitate, due to the nucleo-albumin contained in normal urine. This precipitate contains no piperazine. Now warm a short time to about 40° to 50° C., which causes the above precipitate to cake together; cool quickly and filter. On now rubbing the test tube briskly with a glass rod, the bismuth compound with piperazine begins to crystallize and to deposit as a red powder.

This bismuth compound thus separated from a dilute solution may easily and certainly be recognized under the microscope. It consists of characteristic star-shaped groups of crystals.

When the amount of piperazine is very small, the process of testing for it may be modified as follows:

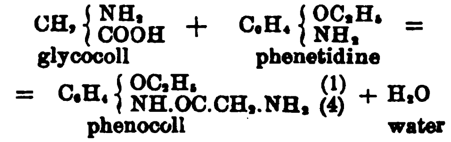
Render the urine decidedly acid and evaporate it. Triturate the sticky, brown residue with powdered caustic soda. This causes evolution of ammonia, owing to decomposition of urea. Mix the magma with about an equal weight of sand, and disilt from a small flask at a brisk rate until no more aqueous vapor passes over into the receiver. This causes the decomposition of sarcosin, creatin, and xanthin. Piperazine, on the other hand, passes over, without decomposition, into the distillate. The latter, which has a strong odor of alkylamines, is boiled for a few minutes in order to expel most of the ammonia. The liquid is then filtered, acidulated with hydrochloric acid, and tested with solution of potassio-bismuthic iodide.

Another, though less striking method, is as follows:

Separate the phosphates, etc., as in the first-mentioned process. Then add a drop of benzoyl chloride and shake briskly. Allow to stand half a day, transfer the dirty-white precipitate to a filter, and wash it with cold absolute alcohol. This leaves undissolved the compound of nucleo-albumin with benzoyl chloride which is formed in every urine. Evaporate the filtered alcoholic extract to a small volume, transfer a drop of the residue upon an object glass, and allow it to dry. It will then show the characteristic crystals of benzoyl-piperazine, viz., transparent, rhombic laminæ of great regularity, which are often joined together in parallel position, but are never in twin crystals.—After a circular on "*Piperazine*" of Chem. Fab. auf Aktien (vorm. E. Schering), Berlin.

Phenocoll Hydrochlorate.

Another addition to the group of antipyretic and antirheumatic compounds forms the subject of a lengthy report by Dr. Hertel (*Deut. med. Wochensch.*, April 9th, p. 521). The compound is represented as being the hydrochloric acid salt of amidoacet-p-phenetidine, a base produced by the condensation of glycocoll, or amidoacetic acid, with phenetidine, under the elimination of water :



$$\underset{\text{glycocoll}}{CH_2\left\{\begin{matrix}NH_2\\COOH\end{matrix}\right.} + \underset{\text{phenetidine}}{C_6H_4\left\{\begin{matrix}OC_2H_5\\NH_2\end{matrix}\right.} =$$

$$= \underset{\text{phenocoll}}{C_6H_4\left\{\begin{matrix}OC_2H_5 & (1)\\NH.OC.CH_2.NH_2 & (4)\end{matrix}\right.} + \underset{\text{water}}{H_2O}$$

Phenocoll is accordingly represented as a phenacetin, into the acetyl radical of which an amide group has been introduced.

The free base is said to be fairly stable towards caustic alkalies and alkaline carbonates, being split up only after boiling with them a considerable time into phenetidine and glycocoll.

It is also stable towards dilute acids; but after long boiling with concentrated hydrochloric acid it is partially hydrolyzed, phenetidine hydrochloride and glycocoll being formed. Phenocoll is precipitated from a solution of the hydrochloride by ammonia, caustic potash, or an alkaline carbonate, in white felted crystals containing one molecule of water of crystallization, the crystals melting at 95° C., or, when rendered anhydrous, at 100.5°. The pure base is fairly soluble in alcohol, but only slightly so in ether, benzol, and chloroform. In hot water it is very freely soluble, but with difficulty in cold, and for this reason the use is recommended of the hydrochloride, which is sent out as a white micro-crystalline powder, forming a neutral solution in 16 parts of water at 17° C. From hot water phenocoll hydrochloride crystallizes out in cubes, and from hot alcohol in needles. Professor Kobert has reported that in some preliminary experiments on animals he found phenocoll to be non-poisonous, and that its administration did not involve injurious changes in the blood, as in the case of other antipyretics. Professor v. Mering, who administered the hydrochloride in typhus and pneumonia, states that a dose of 1 Gm. reduced the temperature about 2, or about equal to 1.5 to 2 Gm. of antipyrin or 0.8 to 1 Gm. of phenacetin, no collapse or cyanosis being observed.

Dr. Hertel himself found that simple doses of 0.5 Gm. quickly lowered the temperature about 0.5°, but only for a short time; single doses of 1 Gm. produced sometimes within an hour a fall of 1° to 1.5°, lasting about two hours. With 5 Gm. distributed over the day the fever temperature could be almost entirely controlled.

After the administration of about 5 Gm. of phenocoll the urine becomes colored brown-red to brown-black; but the elimination appears to occur rather quickly, no reaction being produced in the urine by ferric chloride solution after about twelve hours.—After *Pharm. Jour.*

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The AMERICAN DRUGGIST *is issued on the 1st and 15th of each month. Changes of advertisements should be received before the 5th and 20th. New advertisements can occasionally be inserted after the 10th and 25th.*

INFORMATION WANTED.

OUR *readers will confer a favor by answering any of the following questions and referring to them by number. We will undertake to forward the answers to inquiries when the request for information is accompanied with a directed envelope and postage. The names of the respondents (unless otherwise indicated) will be published in the next issue of the journal.*

ANSWERS.

THE three following are from the same source:

No. 2,519.—**Ely's Cream Balm.** Thymæ, 1 part; oil wintergreen, 2 parts; bismuth subnitrate, 65 parts; white saxolin, 2,132 parts. I find this to work well.

No. 2,520.—**King's New Discovery.** Sulph. morphia, 8 grains; fluid ext. ipecac, ½ drachm; chloroform, 60 drops; tincture white pine, 2 ounces; water, 7 ounces; carb. magnesia, ½ ounce; sugar, 14 ounces.

Rub the magnesia with 1 ounce of the sugar in a mortar, and triturate with the tincture of white pine and the fluid extract of ipecac; gradually add the water and triturate with the mixture in the mortar. Filter, and dissolve the sulphate of morphia in the filtrate; mix the chloroform with the rest of the sugar in a bottle, and add the liquid above.

No. 2,523.—**Ayer's Cherry Pectoral.** Dick's Encyclopædia, third edition, gives the formula of Ayer's Cherry Pectoral as follows: Take of syrup of wild cherry, 6 drachms; syrup of squills, 3 drachms; tincture of bloodroot, 2 drachms; sweet spirits nitre, 2 drachms; wine of antimony, 3 drachms; tincture of ipecac, 3 drachms [not wine, as he says, for if wine is used it precipitates]; simple syrup, 1½ ounces; acetate of morphia, 2 grains. Mix and add oil of bitter almonds [better to use essence], 2 drops of oil [10 drops of essence]. I have found this to be identical. Yours truly,

FRANK FRISBY.

BISMARK, S. D.

WANTED.

No. 2,525.—**Formula for "Zonweis."**

No. 2,526.—**Cause of Bottles Breaking.** Why is it that all my shelf-bottles containing waters crack about the neck?

No. 2,527.—**Arsenic Ore for Sale.** A correspondent in Calaveras County, California, writes: I would like to know if there is a market for ore containing from 5 to 6 per cent of arsenic.

CORRESPONDENCE AND NEWS.

ENGLAND.

THE fiftieth anniversary of the foundation of the Pharmaceutical Society has just taken place with much ceremony and enthusiasm. A conversazione was held on the evening of May 26th, at the house of the Society in Bloomsbury Square. The principal event was the reception of congratulatory addresses, followed by the presentation of the Hanbury medal. The following societies, associations, and colleges sent addresses, many of which were really works of art: Royal College of Physicians, the Royal Society, the Chemical Society, the American Pharmaceutical Association, the Pathological, Clinical, and Obstetrical Societies, the Institute of Chemistry, British Pharmaceutical Conference, Philadelphia and New York Colleges of Pharmacy, and the pharmaceutical associations of Illinois, Massachusetts, Baltimore, and the society at New Brunswick. Amongst foreign societies addresses were read by M. Petit from the Société de Pharmacie de France; by M. Gys from Union Pharmaceutique de Flandre; by Apotheker M. Froelich for the Deutsche Apotheker-Verein; by Dr. Thoms from the Pharmaceutische Gesellschaft of Berlin. Other addresses were presented from Prague, Denmark, Amsterdam, St. Petersburg, Sweden, Queensland, New South Wales, Victoria, etc. Letters and telegrams were read from Professors Flückiger, Dragendorff, J. U. Lloyd, J. M. Maisch, Prescott, Schmidt, Pasteur, and other distinguished scientists.

Amongst the company present were Sir Frederick Abel, Chemist to the War Office; Sir Dyce Duckworth, Professors Armstrong, Bentley, Attfield, Dunstan, Odling, and many others.

A characteristic letter was read from Mr. George Seabury, from New York, in which he expressed his deep regret at being prevented by business engagements from being present, and who thought he ought to be fined $100, so he enclosed cheque for that amount, to be devoted to the benevolent fund of the Society. Needless to say the reading of this letter caused immense cheering and laughter.

The American Pharmaceutical Association address was signed by J. P. Remington, Karl Simmon, W. H. Cotton, and C. A. Heinitsh; that of the New York College of Pharmacy by Dr. Rice, whilst that from Philadelphia bore Chas. Bullock's autograph.

The reading of the addresses, which in most cases was performed by the presidents of the respective societies, occupied nearly two hours. The Hanbury gold medal was then presented to Dr. O. Hesse in commemoration of his pharmacological investigations upon the alkaloids of cinchona, coca, etc. Dr. Hesse, in reply, speaking in German, expressed his warm appreciation of the honor, and communicated the results of his most recent investigations upon the bases of coca. In this he appears to abandon the former claims that hygrine, the hypothetical volatile alkaloid, was always present, and is inclined to believe that it is an impurity.

The Jubilee Dinner took place on Wednesday evening at the Criterion Restaurant. The toast list was very lengthy, and the president of the Pharmaceutical Society, Mr. M. Carteighe, set an excellent example by making his speeches as short as possible. Mr. Edward Horner, of the firm of Horner & Sons, wholesale chemists, replied for "The Founders of the Society"; Professor Michael Foster, M.D., F.R.S., for "The Learned Societies"; whilst Sir Lyon Playfair proposed "The Pharmaceutical Society and the health of its President." "The Guests from Abroad" was replied to by representatives of Belgium, France, and Germany, whilst Sir Joseph

Lister and Professor Tilden responded for "The Visitors."

IOWA.

The Pharmaceutical Association of Iowa will convene at Spirit Lake, Iowa, during the 21st, 22d, and 23d of July next. This is the most beautiful of all Northern summer resorts, and the largest meeting in the history of the Association is expected. Pleasure and profit are furnished to all who attend. Fishing, boating, tennis, and other sports, new and old acquaintances, are among the attractions, and much will be done to promote the interests of pharmacists. Pharmacists of other States, representatives of pharmaceutical journals and colleges, and exhibitors, have expressed their intention to be present at the meeting by the "Lake George of the West." For space for exhibits, address Rosa Upson, M.D., secretary, Marshalltown, Iowa. Information respecting reduced rates may be had from the secretary, or the president, Mr. W. H. Torbert, of Dubuque.

ST. LOUIS.

H. E. **Hoelke**, at 2001 Park avenue, is one of the most scientific and best-educated retail druggists in the city.

Life membership in the St. Louis College of Pharmacy now costs $50, and quite a number are on the list. The annual dues are $2 per year, and the initiation fee an even $5.

Edmond P. **Walsh** was for fifteen years secretary of the St. Louis College of Pharmacy. After a rest of a few years he re-enters the work as vice-president.

The College of Pharmacy has about decided to purchase a 50-foot lot on the southeast corner of 16th street and Lucas avenue and erect a new house for the next session.

Solomon Boehm, of Eighth and Morgan streets, glories in the honor of another son.

The cut-rate war goes merrily on, and no one enjoys it as much as the cutters. St. Louis has five very stubborn ones. But the association members are also satisfied.

G. H. **Chas. Klie** and **Dr.** H. M. **Whelpley** took a river trip to New Orleans for the American Pharmaceutical Association meeting. They had a grand time.

This is a busy month for F. W. **Sennewald**, secretary of the Board of Pharmacy, as the Board meets at Jefferson City, where there is always a good attendance.

No amendments to the pharmacy laws this year, unless the Governor will make the bill a feature of his call for a special session.

C. E. **Corcoran**, of Kansas City, is as ever active in pharmaceutical affairs of local, State, and national importance.

Hugo Frielingsdorf is quite unwell, for the rheumatism has no mercy on him.

M. W. **Alexander** has recovered from influenza, or something just as unwelcome, and still he smiles as his fine business flourishes.

The store on Easton avenue managed by Albert Klute was disinfected by a 500-dollar fire. Insurance not settled.

The small-pox scare is now over and City Hospital patients can receive visitors.

The spring courses of instruction in the various medical colleges all closed about June 1st.

E. **Patten**, of Carbondale, Ill., has numerous friends in this city, whom he visited recently.

Five druggists refuse to join the St. Louis Apothecaries' Association and restore full prices.

Emil Kuenster is the father of a very young son.

Mr. Saenger, the popular druggist at 14th and Olive streets, is no longer a handsome bachelor, but is a popular married man; he was married a few weeks ago, and is now enjoying congratulations from his numerous friends.

The Curtman prize in chemistry at the Missouri Medical College was captured by **Henry** L. **Goodman**, who is a junior student. Besides being a very bright young man, he is a graduate of the St. Louis College of Pharmacy and has that advantage over the average medical student.

Dr. A. V. L. **Brokaw** has purchased the fine residence on the northeast corner of Washington avenue and 32d street, and now occupies it as residence and office. He is one of the most prominent young surgeons in the West.

Dr. J. C. **Falk** has fulfilled his appointment to the City Hospital and is now in general practice, with an office at 1006 Olive street.

Dr. Falk closed his lectures at the St. Louis Medical College on June 1st. His subject was materia medica, and he said that the medical boys learned more about it than is usually taught in such institutions.

One of the brightest and most attentive students at the College of Pharmacy this year was **Miss** A. A. **Bock**, of Smithton, Ill. The two other lady members of the class were also good students.

There are many inquiries about the coming revision of the United States Pharmacopœia, and all seem anxious to see it out.

John S. **Moffitt**, of the Moffitt-West Drug Company, knows how to talk in public, and he made a nice little speech at the druggists' meeting a few days ago. John is a good man wherever you find him.

Ambrose Mueller has returned from a vacation spent in Kansas.

John Bogy is looking for a situation.

Dr. P. H. **Franklin**, of Marshall, was in the city last month. He is a member of the Missouri State Board of Pharmacy.

F. P. **Kerr**, of Van Buren, Ark., is visiting his old home at Marshall, Mo. He is a member of the Arkansas State Board of Pharmacy.

The St. Louis College of Pharmacy and its Alumni Association are making a complete list of all the living graduates, with their addresses. Our readers are invited to supply as many as they can of the addresses for the following and report them to the secretary, Dr. J. C. **Falk**, 1006 Olive street:

Barker, John T.
Brumley, Charles H.
Christman, Wm.
Colby, James F.
Fletow, Philip.
Klein, George J.
Linthicum, P. C.
Niemann, Bernard.
Schmidt, Wm. G.
Evans, John.
Hill, Lafayette, Jr.
Kilbourne, Lewis P.
Lancey, William H.
Roberts, Thomas P.
Tate, Charles C.
Volz, Frederick.

NEW ENGLAND.

The tenth annual meeting of the Massachusetts Pharmaceutical Association will be held June 23d, 24th, and 25th, at the Atlantic House, Nantasket Beach, a famous summer resort, situated about 10 or 15 miles from Boston, on what is called "the South Shore" of Massachusetts Bay. It is a nice location, overlooking the sea, and all things point now to a large meeting. It is hoped the Weather Bureau may be enabled to guarantee pleasant and warm weather, for much of the pleasure of the social features will depend on this.

The first session will begin at 3 P.M., the 23d; second session 9:30 A.M., third 3 P.M. of the 24th; and the fourth and fifth at 9:30 A.M. and 2:30 P.M., respectively, of the 25th. Trade and co-operative movements will be given prominent attention. The outlook now is that there will be a dearth of papers presented, and that the exhibit will not equal most of those in the past. The meetings will be held in the parlors of the hotel.

The only entertainment, so far as announced, is the banquet on the morning of the 24th, to be followed by a hop tendered by the wholesale trade of Boston. Baldwin's Cadet Band furnishes the music for this occasion.

Mr. J. W. Colcord, who has held the position of secretary of the Association since its organization nine years ago, tendered his resignation to the Board of Directors May 25th, owing to inability to attend any of the preliminary meetings, being compelled to be absent from home all the time. His resignation was accepted, and the local secretary, Mr. M. L. H. Leavitt, of Boston, was appointed secretary *pro tem.* All communications regarding the coming meeting should be addressed to him.

The Board of Pharmacy was successful in securing the passage of its bill granting it an allowance of $500 annually for the purpose of securing evidence of infractions of the pharmacy law. It is likely that several test cases will soon be made of parties who are conducting pharmacies in violation of the law, as not being registered themselves or employing registered clerks. It would seem to be good policy for drug stores that have not at least *one* registered clerk, in addition to a registered manager, to do so, as otherwise there is likely to be trouble. It is understood that the Board now means to do something towards enforcing the law in this respect, which so far appears to be a dead letter. The Board has held two or three meetings lately, at which about 25 per cent were successful.

The commencement exercises of the Massachusetts College of Pharmacy were held in Association Hall, cor. Boylston and Berkeley streets, Boston, May 27th. There were about two hundred friends of the students present. The salutatory was delivered by Mr. Pierce, the valedictory by F. W. Day, and the address by E. C. Marshall. Prof. Tucker delivered the valedictory on behalf of the faculty. President S. A. D. Sheppard conferred the degree of Ph.G. upon the twenty-seven graduates. Baldwin's Band furnished the music for the occasion.

The Alumni Supper, complimentary to the graduating class, was held at Young's Hotel, Thursday evening, May 28th. Mr. M. J. Wiltse presided. After the excellent *menu* had been given careful consideration, Mr. Wiltse called upon Mr. S. A. D. Sheppard, president of the College, to speak for *Alma Mater*, which he did in his usual happy manner. Prof. G. F. H. Markoe, as he has done for the past twenty years, spoke for the faculty. Were this otherwise, it would be the play of Hamlet with no Hamlet. Mr. M. L. H. Leavitt spoke for "The Ladies"——a subject that he is at home upon. Mr. Pierce spoke for the class of "'91." Rev. Dr. Rexford was called upon and made a very pleasing address. Prof. E. L. Patch spoke for the American Pharmaceutical Association.

The Pharmacy Club have not made much of a showing of late, but a month or two ago they braced up again at a meeting at Young's which reminded of old times.

At a meeting and dinner at Young's, held May 7th, the following officers were elected by the Club: president, T. H. Hearn; secretary, C. E. George. The Club took an outing at Swampscott June 5th, spending the day fishing and sailing on the schooner "*D.*"

It is said there was "dispensing," some dispensing with dinner, and some dispensed with the breakfast they compounded before embarking. As a rule, pharmacists are not avaricious, but it is said that some of them "wanted the earth" *that* day. Who caught the biggest fish it is hard to find out accurately, as they never tell "Lize." A large quantity of clams were caught.

Considerable anxiety is felt in New England to learn the result of the consideration of trade matters by the A. P. A. at New Orleans. They begin to think that little during this generation will ever be effected in the way of stopping cutting, and it does begin to look like it. With failure after failure staring them in the face, is it to be wondered at that many of the stanchest believers in protective measures should have their patience exhausted and find faith forsaking them?

There is some occasional kicking among the retail trade at the failure of the Hood plan, but the most of them realize that he made an honest and faithful endeavor to suppress the evil, and could not be blamed for abandoning it when it became patent to every observing pharmacist that the effort was useless and was occasioning needless expense and labor upon the manufacturer.

The Lynn druggists have maintained a firm front in the way of local protection for themselves for the past twelve years or so. Lately two or three small outsiders have begun cutting to a small extent. Some of the neighboring druggists began to get restive under this competition and threatened to begin cutting themselves. A meeting of the association was recently held to take the matter under consideration, and it was voted by a large majority to continue full prices as in the past, for the present at least.

Much indignation is felt at the unwarranted attack upon one of the most conscientious and liberal-minded gentlemen of all Boston's jobbing druggists, who is at present a member of the State Senate, by another jobber, for his action in recommending, or rather voting for, certain reforms presented to the committee of which he is a member by the Board of Pharmacy. In the eyes of his many friends—and he has a host of them, both in and out of the profession, for his stanch and unyielding honesty of purpose—this attack will do him no injury, but in the very nature of the case should make him more friends. It seems, however, particularly unfortunate that every time the Board presents its needs (and no fair-minded man will deny that there are needs that should have prompt consideration, for the sake of strict justice to all, if for no other reason) it should meet with so much and apparently so well organized opposition. It cannot fail to impress itself upon the minds of all who can recall events of six or eight years ago as being the same management who worked so long and so arduously to defeat the passage of the bill at that and at previous times.

The bill introduced by the Massachusetts State Alliance to allow druggists to sell cigars and about anything else on the Sabbath was rudely sat down upon by the Legislature.

The Massachusetts State Pharmaceutical Association is making good progress through its various committees in attending to the needs of its next annual meeting, to be held at Nantasket Beach the 23d of June. It promises to be a fine affair in all its surroundings. Every effort is being made to have it one of the best attended and pleasantest meetings ever held. A ball will be given the attending members and their ladies by the wholesale trade. A seashore meeting will be a novelty in the history of the Association.

The College of Pharmacy has completed its winter's work, and about thirty-five young men are consequently happy. The graduating exercises will be held about the first of June, on some day not yet assigned.

The Barnaby mystery has been the all-absorbing theme of late, naturally on account of the mixture mailed and that a physician or two is mixed up in it. There seems to be a feeling that it cannot be laid at the door of a physician, for how much easier and safer it would have been to put it on to the back of some druggist on the plea of an error!

Emory, Daggett & Co., Lynn, have sold out to a gentleman from Boston named Forrestall. **F. S. Merritt** is soon to open a new store in that city, as is also a new one to be opened by **Holbrook & Co.** It seems to the casual observer that business there was being run into the ground.

J. M. Nelson, who was burned out in the great fire, is just ready to move into his new store in the newly-erected block on the old site.

Rumor has it that there is to be a new store opened ere long in Bangor, Me. Rather a dry time to open drug stores in that State since the passage of the new law last winter. It may mean an increased trade in nurse bottles or similar devices as thirst slayers.

Mr. F. R. Hadley, of New Bedford, has sold his store to a syndicate in which it is understood there are several local physicians interested. It will be styled the "Wright Drug Company," and will be in charge of Mr. E. E. Wright, of that city, who has recently sold his store to Messrs. Sullivan & Co. **Dr. J. P. Bailey** has recently opened a new store of small dimensions there. **Mr. A. H. Covell** is fitting up a new store and will soon remove to his new location on Purchase street, corner of Linden.

Secretary Butler has recently moved into his new store in Lowell, and it is a handsome store in all its appointments. May the best success attend him is the best wish of many score of friends.

By a fire over their store during the night of May 1st, **Messrs. G. C. Goodwin & Co.**, the well-known proprietary dealers on Hanover street, Boston, met with a severe loss, by water and smoke largely, although they occupied several of the rooms on the second floor which were burned. It will not materially delay their business. They were well insured.

Pollard & Watson, of Haverhill, have dissolved partnership owing to the continued ill-health of the latter member. The business will be continued by Mr. Pollard.

The Low Art Tile soda fountain manufacturers, owing to increased business, felt obliged the first of the month to move into larger quarters on the same street. Their artistic work seems to fill a long-felt need for something a little different in the way of ornamentation.

The Boston druggists are proposing to make it warm for the jobbing trade as retailers.

Mr. Jas. O'Hare, of Providence, is making extensive alterations in his store. When completed, it will present a very neat appearance.

W. E. Cates, secretary of the Rhode Island Pharmaceutical Association, has just returned from his trip to New Orleans and reports an excellent meeting and a very pleasant trip.

Mr. F. A. Jackson, of Woonsocket, has been laid up by a severe attack of rheumatism, but is out and about once more.

Mr. F. S. Clark, of Attleboro, Mass., is laid up again with severe illness, and will be unable to attend to business for several weeks.

Mr. W. B. Blanding, the well-known jobber, we are pleased to learn, is home again, and recently paid a visit to the store, but is unable to transact any business. He is still unable to get about without assistance.

MICHIGAN.

The new Michigan Salt Company has elected Thomas Cranage, president; C. A. Rust, treasurer; F. C. Stone, vice-president; and D. G. Holland, secretary. Mr. Holland was also secretary of the old Michigan Salt Association, and has had a great deal of practical experience which qualifies him for the position. A committee from the old association, and one from the new company, have been appointed to adjust the price at which the property of the old combine shall be turned over to the new one.

At the annual meeting of the State Board of Health Dr. John Avery, of Greenville, was elected president for the ensuing year. Secretary Baker says he has found out the cause of the unusual prevalence of the influenza during the last few months. According to him, the northerly winds and the excessive amount of ozone in the atmosphere form a combination which delights the heart of the schizomycetes and allows him to get in his work unmolested.

W. F. Henes, the well-known druggist of Bay City, was found dead in his bed on the evening of April 18th. He had gone to his room over the store to take a nap after dinner, and not coming down again, a clerk went up to wake him and found him dead. Heart failure was the cause. Deceased formerly lived in Chicago, where he was vice-president of the Chicago Drug and Chemical Co. His life was insured for $12,000 and he leaves a wife and five children.

Mr. E. W. Russell, brother of Superintendent Russell, of Parke, Davis & Co.'s laboratory, was discovered in a dying condition on the floor in his office at the laboratory last week. Medical aid was summoned, but he was already past all help and died before the ambulance arrived. Although he had been in Detroit but a comparatively short time, Mr. Russell had made scores of friends, all of whom extend their sympathy to his bereaved family. Heart failure was the cause of his death.

Mr. William Stearns, manager of the Private Formula Department of F. Stearns & Co., was married last month to Miss Yates, of Port Huron. The couple went on a tour through the Southern States. Although Mr. Stearns is quite young to hold the responsible position he does, he has remarkable business ability, and it is owing to his efforts that the department of which he has charge has reached its present enormous proportions. He is the younger of Frederick Stearns' two sons, his brother, F. K. Stearns, being president of the company. His numerous friends, both in and out of the profession, wish him good luck and the best of happiness.

NEBRASKA.

At the examination held by the Nebraska State Board of Pharmacy in the parlors of the Paddock Hotel, Beatrice, May 26th, the following members of the Board were present, viz., J. E. Riggs, Lincoln; Max Becht, Omaha; W. D. Haller, Blair; Henry D. Boyden, Grand Island; and James Reed, Nebraska City.

The following named persons were successful in passing the examination out of a class of 25: B. F. Brendel, Murray; W. W. Brown, Tekamah; D. S. Beynon, Burwell; William Bülow, Wakefield; O. W. Bullard, Beaver City; William D. Cole, West Union; M. P. Dawson, Edgar; E. Fosselman, Filley; W. H. Keeney, Campbell; Isaiah Lukens, Herman; T. W. V. P. Mercereau, Dunning; O. W. Newell, Hebron; E. E. Reynolds, Rock Bluffs; John G. Rodmell, Lincoln; Harry D. Rugg, Harvard; J. H. Remsberg, Red Cloud; Edward Tanner, Battle Creek; Dan J. Thompson, West Point; John M. Wilson, Harrisburg.

The next examination by this Board will take place as follows, viz.: Capital Building, Lincoln, August 11th, 1891; Parlors, Hotel Dellone, Omaha, August 12th, 1891; Parlors, Midway Hotel, Kearney, August 13th, 1891, at 9 a.m. sharp, each day.

Yours very truly,
Henry D. Boyden, *Secretary.*

Grand Island, Nebraska, June 1st, 1891.

Buffalo (N. Y.) College of Pharmacy.—The honor roll of the Senior Class, at the late Commencement, was as follows, in the order of merit:

F. W. Meyer, of Cleveland, Ohio; John Welzmiller, of Bath, N. Y.; Udell S. Bramen, of Cory, Pa.; Jess. E. Hische, of Canal Winchester, Ohio; Emory H. Brecken, of Clarence, N. Y.

Mr. Willard H. Reed, of the Junior Class, received the Faculty Junior prize of $25 for the highest general average. Mr. John Welzmiller secured the Peabody prize of $50, and Mr. U. S. Bramen the Job J. Matthews prize of $25, for high class standing.

The Pennsylvania Pharmaceutical Association meets at Bedford, Pa., at 10 a. m. on the 23d inst., in the Bedford Springs Hotel. The meeting will continue through three days, holding one or two short sessions each day, the rest of the time to outdoor amusements, for which the place is particularly well adapted. The hotel charges will be $2.50 per diem. The secretary, Mr. J. A. Miller, of Harrisburg, supplies orders for tickets at excursion rates. Exhibitors of goods should address Mr. C. C. Read, of Huntingdon, who is chairman of the Exhibit Committee.

The Alumni Association of the Chicago College of Pharmacy held its annual election of officers for the ensuing year on Tuesday evening, March 10th, immediately following the supper of their reception and banquet, at Germania Hall, which was largely attended by the younger graduates, as well as many of the older ones, and their friends. The ball was a most enjoyable affair, and was participated in by mostly all in attendance. The banquet was held at the hour of 12, and was a good criterion of Mr. Stein's skill as a caterer. The toasts were well rendered by the various speakers, keeping all present in a joyful mood. The music was provided by a mandolin orchestra during the banquet and between the dance numbers. The following are the officers elected: Otto J. Hartwig, president; Fred. A. Rometch, first vice-president; Chas. C. Thiel, second vice-president; E. K. McPherson, secretary; Jos. T. Delfosse, treasurer; Executive Board for one year, Emil A. Zahn. Lewis Ellsworth, Jos. M. Stang; for six months, A. Emil Hiss, Adolph Karpen, and C. H. Rimmele. Fred. A. Rometch,
Sec'y pro tem.

American Druggist
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THE MANUFACTURE OF OLIVE OIL.

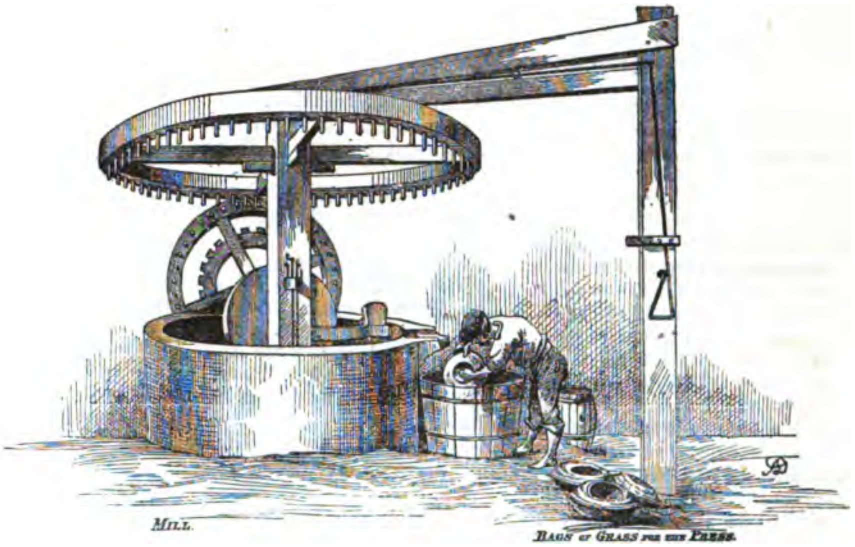
United States Consul Bradley, at Nice, in the course of an official report on "Olive Culture" on the Mediterranean coast of France, furnishes the following:

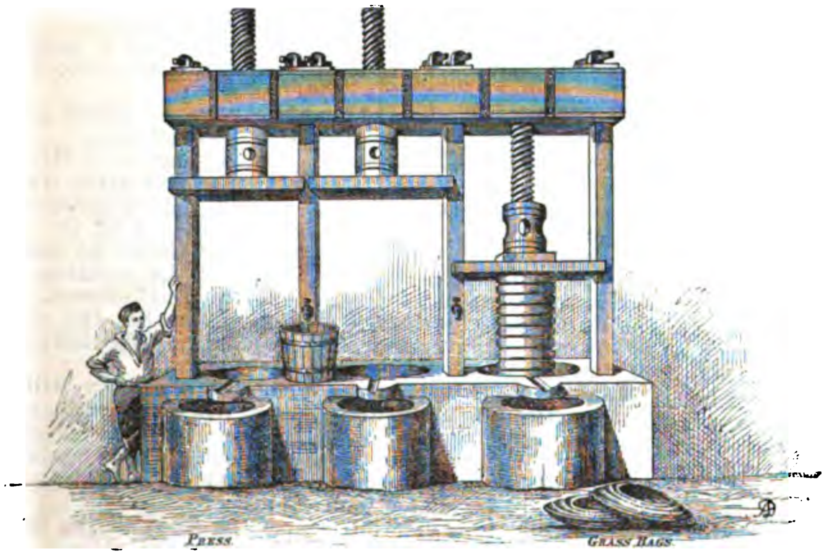
Oil Mills.—The olives being gathered, the farmer here either takes them to the mill at once, if he sells to the miller by weight; or spreads them in the sun or granary to dry out some of the moisture, if they are simply to be ground by weight for his own benefit.

The olive seems to lose no oil until the humidity is taken out; but water, hot or cold, or, still better, oil, must be added to olives too dry, to cause their oil to flow.

The mill in use to-day to crush the olives differs little from those used for centuries.

I visited one near Nice early in November, when the crop was just beginning to arrive; the olives were poured into an enormous stone bowl, from the centre of which rose a large wooden shaft crowned with a large wheel; in the rim of the wheel, pointed downward and regularly spaced, were strong oak pegs for cogs; these met similar pegs or cogs in the power wheel, which was turned slowly by an overshot water wheel; attached to the upright shaft, forming an acute angle with its lower end, was a large millstone exactly the shape of a large grindstone, the edge bevelled to match the slightly concave bottom of the great bowl; from the side of the upright shaft, opposite to the great millstone, on the end of a short horizontal shaft, was a scraper which fitted the inner side of the bowl. When the mill starts, the olives in the bottom of the bowl are crushed by the stone, those forced up the inner sides of the bowl as the great stone revolves are scraped off and drop back under the stone until the mass is reduced to an oily paste. This paste, shovelled out, was packed into flattish-round woven-grass bags, which were taken to the presses; these are simply rough, heavy frames fitted with large screw presses worked by hand. The bags are piled up in single piles, like so many cheeses, on the wide oak slab forming the bottom of the frame; the presses are screwed down upon them with a hand bar, exactly as our house-raising jacks are screwed up. The oil drains into tubs placed to receive it, when boiling water is poured over the bags to help the flow and joins the oil in the tub; the oil rising to the surface of the water is skimmed off with very large tin skimmers.


Mill. Bags of Grass for the Press.


Press. Grass Bags.

Mr. Brullé, director of the agronomic station at Nice, has invented a mill which, as it crushes the pulp, extracts the stone and throws it out; this allows, according to Mr. Brullé and other authorities, the oil of the pulp, the true virgin oil, to be obtained from the press without any mixture of that from the stone or kernel.

The people of these warm, olive-raising countries are slow to adopt new ideas, so Mr. Brullé will have to wait some time before seeing his new labor-saving (to say the least) invention supersede the clumsy, old-fashioned methods which are used now because the ancestors of the people used them.

Virgin Oil.—Many people talk about virgin oil, but such a thing cannot be found by the ordinary consumer. It requires so much care and attention to prepare this oil that it is only to be found in the house of a farmer who has a mill and prepares this oil for his own use.

Olives are taken when only three-quarters ripe; these are all selected free from any blemish. They are taken, immediately after they are gathered, to the mill, where they are but slightly crushed, so that the pulp alone comes in contact with the millstone; the seed must not be touched, for, though the kernel contains a certain quantity of oil, it is, as connoisseurs know, rather acid and has not as fine a taste as the oil from the pulp.

This pulp having been crushed without the addition of water, either hot or cold, is gathered in a heap, the centre of which is made hollow in the shape of a funnel.

The oil flows by itself from the inner sides into the centre of the reservoir, from which it is taken with a large ladle.

The oil so prepared is greenish in color, its perfume is exquisite, and it can be kept for many years.

First-Quality Oil.—For oil of the first quality, called "cannon oil," the olives are placed in the mill without addition of water, if the fruit is freshly gathered. The oily paste is placed in bags made of clean esparto and submitted to the press.

In mills with more modern improvements hydraulic presses are used.

Second Quality Oil.—To obtain oil of the second quality, and in order to extract from the pulp all the oil which it contains, they throw the contents of the bags into a vat which is full of cold or warm water; the whole is well stirred up, the broken fragments of the seeds fall to the bottom, while the pulp floats; this is gathered and replaced under the press.

Some pour boiling water over the bags the first time they are put under the press; this simplifies the labor, greatly increases the yield, but reduces the quality.

After all the usual means of extracting oil from the pulp have been employed, 10 per cent of oil can still be obtained by using bisulphide of carbon.

Oil Yield.—The best oil is undoubtedly obtained from olives not fully ripe, for too ripe fruit gives oil which is heavy and without perfume.

Risso says that 100 Kgm. of sufficiently ripe and sound olives ought, in a good year, to yield 20 Kgm. of good oil and 4 Kgm. of inferior quality, and in bad years only 10 of good oil and 2 of inferior.

Olive Refuse.—After the oil is extracted the skins and refuse are employed in heating boilers, the muddy substance found at the bottom of the most inferior quality of oil is used as a manure, and, last of all, the broken stones, or "grignons," make a very excellent fuel, which has the advantage of not giving off any carbonic acid gas, as charcoal does.

Fraud is found in the oil mills, as everywhere else. Should the olives be mouldy, which often happens when they have been gathered or kept in bad condition, the bad taste is hidden by adding leaves of wild olive trees to the pulp.

Others even go so far as to throw seed oils over the pulp while it is being ground, so as to get a perfect blending with the new oil.

Keeping Oil.—To keep oil in good condition needs great care and attention; the clear oil ought to be separated from the turbid at once, for the longer the oil remains on the lees the more apt it is to contract a rancid or a bad odor. When the oil has been decanted several times, as needs may be, filtered through dry mass, carded cotton, sand, plaster, charcoal, etc., it must be stored in a place which is sheltered both in summer from the heat and in winter from the cold.

Restoration.—Oil must be kept in vessels which close tightly and are made of a substance on which oil has no action. These precautions are indispensable, for the effect of the air on oils is too well known not to be guarded against; they absorb oxygen very rapidly, and soon reach a condition which renders them unfit for food. They can be restored nearly to their original state by warming them, with the addition of alcohol, and washing them afterward, but they become much paler in color, without any strong taste or odor.

Lime water in equal proportions can also be used, or 25 Cgm. of caustic potash per kilogramme of oil.

◆

Chloride of Zinc for Perspiration of the Feet.—Dr. Wincgradoff advises the application of a 5-per-cent solution after washing the feet with tepid water. The solution may be applied with a sponge, and should be washed off after a few minutes.

McFERRAN'S COMPRESSED TABLET MACHINE.

THIS machine is very popular in England, and largely employed by the principal firms making compressed tablets. It is made in four different sizes, the smallest being worked by hand power, but the others are all adapted for steam power. The machine illustrated herewith (page 199) weighs about 2¼ cwt., and is capable of turning out from 60 to 120 tablets a minute. By the adoption of different punches and dies it is possible to make the tiny hypodermic tablet of one-sixteenth of an inch diameter or the lozenge of three-fourths of an inch. It is particularly suitable for making quinine tablets and compressed tablets generally. Automatic cleansers are supplied, whilst the time occupied in changing the dies from one set to another is barely over a minute. The largest machine of this class weighs half a ton, the turret carrying four dies which may be either simple or multiple; if the latter, 4 tablets are made with each impression, and the machine will produce 300 tablets per minute. The price varies from $150 to $650, according to size, that given in the illustration being offered at $275. The makers are Messrs. Holroyd & Co., Tomlinson St. (works, Hulme, Manchester, England), and the machine is known as McFerran's patent.

Supplemental Notes to Lloyd's Process of Alkaloidal Assay.

PROFESSOR J. U. LLOYD's method of assaying alkaloidal drugs and preparations, which formed the subject of a paper read by him at the recent meeting of the American Pharmaceutical Association at New Orleans, and published in this journal for May 1st, has deservedly attracted very wide attention. The author has had many inquiries since reading the paper, and has decided to present to the Ohio Pharmaceutical Association, at its annual meeting, an additional paper embracing both the original as it was read at New Orleans and also the remarks made by the author in the course of the discussion following its reading, together with such additional notes as seem to be of general importance to correspondents.

The author says that the scheme of assay was suggested as a generalization, not as a process perfected and closed as to details. It was intended to form the basis of experiments for comparison with other methods, the ultimate result perhaps being a new and short method for assaying most alkaloidal liquids.

Preliminary reports from those who have tried it and are interested in such work, lead the author to believe that the suggestions offered will be useful and more valuable than was originally expected.

We now quote from Professor Lloyd's new paper (presented to the Ohio Pharmaceutical Association):

NOTES.—If a fluid extract is made by means of strong alcohol, the soda magma may not separate clearly when the chloroform is triturated therewith. The difficulty is best overcome by evaporating the alcohol, or by the addition of two (2) C.c. of water, which should be added to the contents of the mortar after the solution of ferric chloride has been mixed with the fluid extract. If the fluid extract is made with diluted alcohol, the chloroform will separate sharply and clear, and the addition of water is unnecessary.

If the fluid extract contain volatile oils, they will in part continue with the alkaloid and reach the final chloroform, unless the ether-modification process suggested for chlorophyll-yielding drugs be adopted. This washing with ether is therefore necessary with drugs in which alkaloids are associated with volatile oils.

If an alkaloid is volatile, it must be fixed in the final chloroform by means of an acid, before the chloroform is evaporated. Then calculate the alkaloid from the resultant salt.

It is necessary that bicarbonate of sodium be added in quantity sufficient to form a *stiff dough magma*. The inexperienced operator is inclined to use it too sparingly, the result being that much of the chloroform is taken into the mass instead of separating therefrom.

Rotate by giving the liquids a circulatory motion, thus grinding the ever-changing surfaces together. The object, *changing surface contact*, is best accomplished by preserving clear surfaces and rapid rotation. If the liquids be *shaken together*, globules form enclosing masses of unchanging solution, the result being an emulsion, and should be avoided. By attention to the rotation principle the operator will quickly deplete the liquid, that has least solvent power, of the alkaloid.

The preferable rotator (separating funnel) is the globular, stoppered, and with stopcock. For assay determinations by my process the eight (8) ounce rotator is best; it should not be smaller. The pear-shaped (Squibb) pattern is better adapted for quiescent separation of different liquids, but is, in my experience, a defective rotator, and I do not use it for rotating. I have taken the liberty to apply the term *rotator* to the globular pattern and *separator* to the pear-shaped pattern to distinguish them.

A small addition (2 to 5 C.c. to chloroform 100 C.c.) ammoniated chloroform in some cases forms a better solvent and will abstract the alkaloid from the soda magma more rapidly than neutral chloroform.

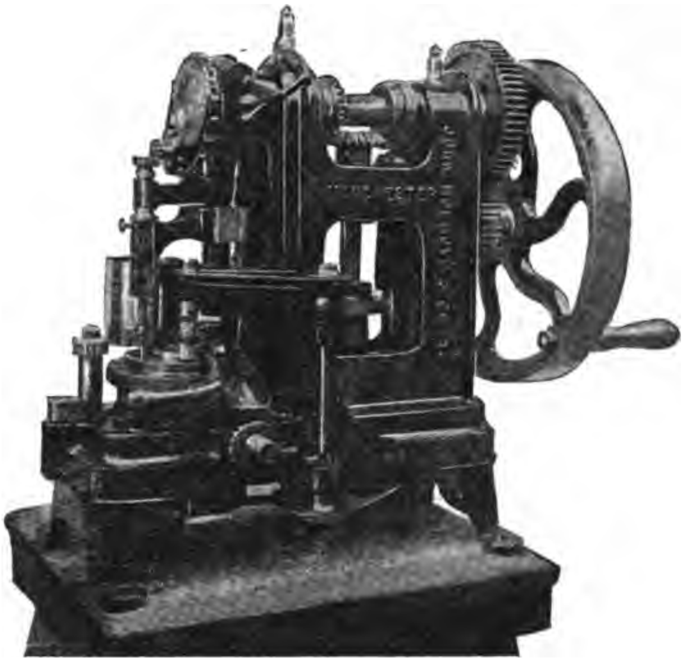
FORMULA FOR AMMONIATED CHLOROFORM:

Chloroform....................	96 parts, by measure.
Stronger ammonia....	4 " " "

Mix them well together, and after separation draw the chloroform from beneath. If used in large amounts it may produce a jelly with the soda magma.

In some cases the residual alkaloid assumes a yellow color during evaporation of the chloroform. This will be observed with emetine and bases that are affected by heat and ammonia. In some cases traces of accompanying coloring matters intensify the coloration, without however appreciably affecting the weight of the crude alkaloid.

Constant weight is quickly attained at a temperature of 100° C., if the alkaloid be in thin layer. It should never, therefore, occupy depth sufficient to permit the formation of a skin over the surface, and for this reason it is best to evaporate the chloroform in shallow, watch-glass-shaped dishes.



McFerran's Compressed Tablet Machine. (See page 198.)

Most alkaloids separate amorphous from rapidly evaporated chloroform, and they are often very hygroscopic. In consequence they must be weighed quickly after reaching a constant weight, and even during the act of weighing, unless protected from moist air, will become appreciably heavier. For this reason it is well to clamp a cover glass over the alkaloid as soon as it is dry.

If the operator prefer, he can evaporate the chloroform after extracting the soda magma, exhaust the residue with the acidulated water, and either titrate the acid solution, or make it alkaline and abstract the alkaloid with chloroform and weigh it. I often use this method, and it hastens the process.

Care should be exercised to prevent any of the alkaline water solution from following the final chloroform. It is best to draw these last chloroform fractions into a dry separator and then separate again, drawing the chloroform into the evaporating dish. If any of the water solution passes into the evaporator it will contaminate the alkaloid with ammonium sulphate. Under these conditions, weigh the crude alkaloid, wash the dish well with chloroform, dry it, and weigh it again. The difference will be the amount of alkaloid.

Owing to the insolubility of morphine, the method cannot be applied to the estimation of that alkaloid in opium preparations. Neither will it estimate the total alkaloids of hydrastis.

The following notes are of interest to many correspondents:

The fact that a menstruum may be an excellent solvent for an isolated alkaloid does not indicate that it is capable of breaking an alkaloid from its natural combination in a drug. Considerable energy is often necessary in order to liberate alkaloids in condition favorable to their abstraction by neutral solvents—a fact that is shown by the methods adopted in obtaining them on a large scale. For example, chloroform will not abstract all the caffeine from guarana or tea, and neutral solvents such as chloroform and ether will not abstract as completely as might be supposed the alkaloids of other drugs. Preliminary treatment of drugs with acids and alkalies is often necessary to the complete liberation of their alkaloids; and even then non-aqueous liquids are incapable of their perfect abstraction, and an aqueous menstruum is often best or even necessary to search the vegetable integuments thoroughly. It will be seen, therefore, that an assay process that may be applicable to alkaloidal *liquids* is not necessarily useful in assaying the *crude drug*, and a method that may give good results with alkaloidal fluid extracts may be of little value in abstracting the crude drugs from which they are made.

The foregoing remarks will indicate why I may not consider ferric hydroxide as the only active agent of my suggested method of examining alkaloidal liquids. It is, however, a very "potent" factor, and yet the preliminary action of the acid of the ferric chloride and subsequent action of the alkali of the sodium bicarbonate are influences that it seems to me should be considered in connection therewith.

Prof. Prescott writes me concerning my process, and I take the liberty to repeat his words, as they present a valuable suggestion:

"It does not surprise me, ferric hydrate has great powers. It never occurred to me to work with it in alkaloidal separation. Ferric hydrate is a great thing, and, please observe, FERROSO-ferric hydrate is still more potent."

I have not employed ferroso-ferric hydrate, and this agent is likely, as indicated by Professor Prescott, to prove superior to ferric hydroxide.

I have, however, met with good results by using a mixture of equal amounts of dry ferric hydroxide and sodium bicarbonate. Rub enough of the mixture into the fluid extract to form a stiff dough, then abstract with chloroform, and complete the assay as suggested previously. It is not improbable that this may serve a better purpose in some, or perhaps most, cases than the method I suggested at the New Orleans meeting.

Another variation, often very quickly performed, and based on the foregoing, is as follows:

Process of Assay.—Pour 5 C.c. of the fluid extract into a mortar and triturate into it enough of a mixture of dry ferric hydrate and sodium bicarbonate to form a thick dough magma. Exhaust this mass by trituration with successive mixtures of chloroform, first using 20 C.c. of the mixture and 10 C.c. afterward, decanting severally until 50 C.c. of menstruum are obtained. Pour about one-fourth of this chloroform solution into an evaporating basin on a water or steam bath, and as it evaporates add the remainder (the object being to obtain the alkaloidal residue in small compass). Now pour diluted sulphuric acid (1 in 50) into the dish in amount sufficient to cover the alkaloidal residue in the dish, and continue the heat a few moments. Decant the acid solution, filtering it through a small paper. Wash the residue twice more in the same manner with diluted acid, filtering it through the same paper. (This excludes most impurities from the acid liquid.)

Titrate this acid liquid, if the operator prefer titration, with either Mayer's solution or other alkaloidal reagent. If not, make it alkaline with ammonia, pour it into an eight-ounce rotator, and abstract the alkaloid by abstracting it four times successively with 10 C.c. of chloroform. Evaporate the chloroform in a shallow dish and weigh the product. Its weight expressed in grammes and multiplied by 40 will show the alkaloidal percentage of the fluid extract.

It will be observed that while the scheme is simply a variation of the other process, it dispenses with the first series of rotations, and, if titration is employed, *dispenses with the rotator altogether.*

Solid extracts may be estimated after the process suggested for fluid extracts, but must first be brought to the condition of a syrupy liquid by trituration (preferably) with solution of ferric chloride. I use 1 Gm. of the solid extract, and 2 C.c. of solution ferric chloride previously diluted with its bulk of water. After a smooth cream is made by triturating them in a mortar, sufficient sodium bicarbonate is added to form a dough, which is then extracted with chloroform in the usual manner. The weight of the final alkaloidal residue must be multiplied by 100 (equivalent to moving the decimal point two figures to the right), which will give the alkaloidal percentage of the extract.

The operator must use the sodium bicarbonate in amount sufficient to form a tough mass, and thus prevent the formation of an emulsion. The mass in the mortar should part with most of the chloroform and not take it into its substance, and it will do so if of proper consistence.

In order to make sure that the alkaloidal abstraction is complete, it might be well always to triturate with chloroform until 50 C.c. of liquid *have been obtained*, using first 20 C.c. and afterward portions of 10 C.c. each (instead of using 50 C.c., as suggested in New Orleans). The smaller the amount of fluid extract (within reasonable limit) the better both for accuracy of result and economy of material. This is governed largely by the sensitiveness of the balance that is used in weighing the alkaloidal residue; if very sensitive, as small a quantity as 1 C.c. of highly alkaloidal drugs being preferable to larger quantities.

If the principle of assay suggested in this paper, either in part or as a whole, be found a desirable innovation on present methods, it is likely that particular processes will be devised and adapted to each preparation. My paper is designed as a generalization only. calling attention to classes which may, however, be again judiciously subdivided. The formulas adopted by the Committee of Revision of the Pharmacopœia will govern the details of the methods of assay.

Respectfully,

J. U. LLOYD.

Chloralamide Dangerous in Certain Kidney Affections.—Dr. Robert Main calls attention to a danger that may possibly attend the administration of chloralamide in cases where the kidneys are affected so as to interfere with its free excretion from the system (*Brit. Med. Journ.*, May 23d, 1123). In the case of a patient eighty years of age, with granular kidneys and a dilated heart, a 30-grain dose of chloralamide has always produced refreshing sleep and a sense of well being, without headache in the morning; it has also apparently abolished the desire to micturate in the night. But on each morning after the chloralamide has been taken there has been profuse epistaxis, and a great deal of congestion of face and neck on the following day.—*Pharm. Journ.*

Iron, and especially Blaud's Pill, as a Remedy.

DR. T. CLIFFORD ALLBUTT writes to the *British Medical Journal* concerning the use of iron as a remedy as follows: "In his interesting articles on anæmia, Dr. Stephen Mackenzie discusses with some care and anxiety the proportions of alkali to be combined with sulphate of iron in Blaud's pill. Let me assure Dr. Mackenzie and your readers that these proportions are of no importance whatever, and that the alkali may be omitted without therapeutical loss and with much practical convenience.

"For the last five years of my practice I ceased entirely to use the alkali, and my results were equally good. The mistakes and failures in treating adolescent and chlorotic anæmias are often due to the prevailing economy in the use of the iron. With 5 or even 10-grain doses of citrate of iron little real progress may be made in many cases. No form of iron is so efficient as the sulphate, of which gr. i. thrice daily is to be given for a week, then 2-grain doses for ten days, and so on till 9, or even 12, grains are taken in the day. The drug should be gradually reduced in like manner, and the course should never be less than three months in duration, or relapses may occur. In obstinate cases the addition of one-thirtieth grain of strychnine, or one-quarter grain of phosphide of zinc, is a valuable aid. Most patients require the inclusion of one-third to one-fourth grain of extract of aloes to prevent the constipating effect of the sulphate, but Dr. Mackenzie rightly denies that constipation is the cause of chlorosis, or even generally coincident with it. This error is due to reasoning from an insufficient number of careful records.

"Iron pills should be carefully made from the dried sulphate, and not with gums, which by hardening make the pills insoluble. In any case it is better to order the pills to be freshly made every week, if not even more frequently. Patients who are unable to take pills are best treated with the saccharated carbonate of iron, of which three or four large teaspoonfuls may be given in the day."

A Possible Cure for Cancer.

ABOUT two years ago Dr. Mortimer Granville told the *Lancet* of a method of treating cancer which he believed to be likely to prove useful, and now, as the result of experience to this date, he is able to say, 1, that none of the earlier cases have relapsed; 2, that scirrhous tumors of a large size and undoubted authenticity have gradually disappeared without any operative interference; 3, that the health of patients has improved under treatment, and the cachexia vanished.

The method of treatment was, we may state, the combined use of thalline and papayin; but Dr. Granville now uses, instead of thalline, a periodo-hydromethyloxychinolin (an iodo-derivative of antipyrin), because that is better borne and seems to be more effective than thalline. He either anoints or injects the tumor with a papayin specially prepared, as he has reason to believe that it is not the proteid elements but the organized ferment of the papaw juice that produces the effects observed.

At present Dr. Granville does not explain why this method of treatment is effectual, for its scientific aspects are still under investigation.—After *Chem. and Drugg.*

The Nickel Carbon Monoxide which Mr. Ludwig Mond discovered some time ago has been found by Professor McKendrick, of Glasgow, to be intensely poisonous, and, when present in the atmosphere to the extent of one-half per cent, to prove fatal to animal life. When injected subcutaneously, even in very minute quantity, it acts as a respiratory poison, giving rise to symptoms similar to those produced in carbonic oxide poisoning. Its properties generally indicate that, when a means has been found of properly diluting it, it may be used as an antipyretic, since it is capable of depressing the temperature of the body very considerably, and for a long time. Messrs. McKendrick and Snodgrass propose the short name "nico" for the compound. If a suitable solvent can be found for it, it is expected that it will find some use in medicine.—After *Ph. Journ.* and *Chem. and Drugg.*

Aristol—Its Therapeutic Uses.

DANIEL LEWIS, M.D., publishes in the *Medical Record* of June 6th a summary of his experience in the use of aristol:

The powder, without admixture, applied to an ulcer attended with copious and offensive discharge, promptly abolished the odor and checked the discharge within twenty-four hours. It favors the formation of a scab, when healing by this process is indicated. For application to ulceration of the cervix uteri it can be readily applied by means of a cotton tampon smeared with vaseline, to which the powder will adhere. Such cases as were attended with induration, thickening, and suppuration were all promptly improved.

Aristol and iodol in equal parts, applied by means of a speculum and powder-blower to similar conditions, and retained in position with tampons of cotton, were also convenient and efficacious. The same mixture applied twice daily in cases of chronic nasal catarrh, when the discharge was profuse or fetid, caused marked and permanent improvement without irritation.

Ointment of aristol with petrolatum or cold cream was useful in skin affections having a tendency to form pus, or in which mild stimulation was wanted. For fresh wounds, as well as for the foregoing, a larger proportion than four to thirty will be requisite.

Moist gauze of aristol, dusted with the powder, is more desirable as a surgical dressing.

Solution in liquid petrolates, *e.g.*, "albolene" or "benzoinol." is a satisfactory application when a moist dressing is advisable, and is sometimes available as a vaginal or uterine application.

Flexible collodion with aristol is said by the writer to be one of the most valuable of its preparations. With it abrasions of the skin may be covered. Excessive perspiration of the hands was relieved by it after a short period of use. Erysipelas in its early stages, coated with this preparation, was, in several instances mentioned, shortened in duration, the writer declaring it to have been more effective than anything he has ever employed—not excepting white lead paint, which Mr. Barwell, of London, has found so useful.

A Combination of Iodine with Glucose.

F. P. MANN, M.D., of San Francisco, Cal., is the authority for the following:

The remedial value of iodine is well known. But it is also a fact that full doses cannot be administered internally except in the form of iodide of potassium. As a rule, in the various forms of disease to which free iodine is applicable any combination having an alkaline base is not desirable. In order to secure the specific action of a remedy adapted to relieve chronic disorders—and it is to this class of diseases that iodine is chiefly applicable—it is important that it should be to a certain extent cumulative and retained in the circulating blood for a sufficient length of time to exert its specific action upon diseased tissues. In glucose we have an agent capable of absorbing, or rather of occluding, free iodine so that this metalloid cannot be detected by either odor or taste, and thus combined can be administered in much larger doses than formerly employed without producing unpleasant symptoms. Another advantage in giving iodine occluded by glucose is found in the fact that as this substance occurs normally in the contents of the small intestine, in the chyle after the use of amylaceous and saccharine food, in the blood of the hepatic veins, and in the tissue of the liver in the form of glycogen, it is probable that glucose in thus occluding free iodine is itself protected from chemical change during the process of digestion by the antifermentative quality of the latter, and hence may be readily absorbed into the circulation, carrying in its embrace the iodine to be liberated during the morphological changes that occur prior to the formation of new blood corpuscles. In the formula, 30 grains of iodine are dissolved in 4 ounces of water by means of 150 grains of potassium iodide; to this solution are added 12 ounces of syrup as prepared by the sugar refineries and sold by grocers under the name of golden syrup, or sugar-house syrup or molasses. This syrup contains glucose in combination with organic matter, and answers the purpose quite as well as glucose manufactured from starch by the action of sulphuric acid, or other glucosides furnishing this substance in an isomeric form. The exact formula as above should be given to the druggist with special direction that simple syrup must not be substituted; this, containing entirely crystallizable sugar, will not take up the iodine, and the result will be a strong solution of iodine, which cannot be taken without serious inconvenience. To avoid mistake, I direct as follows:

℞	Iodinii	ʒ ss.
	Potass Iodidi	ʒ ijss.
	Aquæ Puræ	℥ iv.
	Syrup. Fuscus	℥ xij.
	Ess. Gaultheriæ	ʒ ij.

M. Fiat. sol. Sig.: Take teaspoonful between each meal with a little water. (Syrupus simplex must not be used.)

I have succeeded in producing the most satisfactory, I may say remarkable, results where potassium iodide, Lugol's solution, and Syrup. ferri iodidi had signally failed. It is better, in prescribing this formula, to advise commencing the use of the medicine the day following that on which it is ordered, as some hours, about six to ten, are required in which to completely occlude the free iodine. I do not know the exact limit of this occlusion, but, if desired, a much larger proportion of iodine can be used than already named, and still remain odorless and tasteless so far as free iodine is concerned; though where a stronger combination is employed it would be advisable to commence with a smaller dose and increase it gradually.—*Medical Record.*

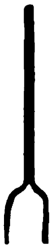


FIG. 1.

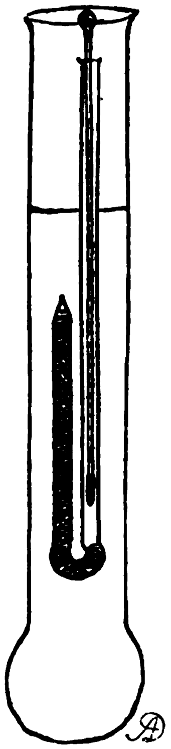


FIG. 2.

SIMPLE METHOD OF DETERMINING THE BOILING POINT OF LIQUIDS.

A MOST simple and ingenious method of taking the boiling point of many liquids has been recently described by A. Schleiermacher in the *Berichte* (1891, 944). The principle upon which it is based is the following physical theorem:

"The boiling point of a liquid is that temperature at which the tension of its vapor, in a space saturated with the latter, is equal to the atmospheric pressure."

This principle has, indeed, been made use of for this purpose heretofore, but no general use was made for it.

The substances, the boiling points of which are to be determined by the method presently to be described, must have the following properties:

1. They may be liquid or solid, but their vapor must remain undecomposed by mercury at their boiling point.
2. Their boiling point must not be so high that the tension of the mercurial vapor itself would vitiate the results. The author states that no such influence has been noticed even up to 300° C.
3. Moreover, there are some other conditions necessary to be fulfilled, viz.:
4. The substance must be pure.
5. A correct thermometer must be used, of course.
6. Enough of the substance must be employed to have the space intended for the vapor filled with the latter, and to have some of the substance itself left unvaporized. It is only when this latter is the case that the operator knows the space occupied by the vapor to be "saturated" with the latter.

In general, the operation is as follows:

The substance to be operated upon is introduced into one arm of a U-tube, the orifice of which is closed by fusion, and the same arm is completely filled with mercury. The open branch is left empty except near the bottom, where the mercurial column must reach to the top of the bend to prevent access of air to the other branch. A thermometer is now placed in the open branch, the U-tube immersed in a suitable liquid, and the latter heated until the vapor produced by the substance has depressed the mercury in the closed branch, so that the level in both branches is exactly alike. The temperature is then read off, and this is the boiling point.

The manner of filling and preparing the U-tube is as follows:

A piece of tubing about 20 inches long and 6 to 8 Mm. wide (wide enough to permit the easy insertion of a thermometer) is drawn out at one end to a fine capillary tube, as shown in Fig. 1. The tube is then bent to a U-tube, the open end being left much longer (see Fig. 2). Next the substance is introduced into the short branch, and the latter completely filled with mercury. In order to expel all traces of air, the substance (liquid or solid) on the top of the mercury in the short branch is cautiously brought to a boil, the vapor escaping through the capillary tube; and while this thus escapes, the capillary tube is quickly closed by fusion. There may remain a *minute* bubble of air or gas, which is too insignificant to be of any influence. Before beginning the actual experiment, the excess of mercury in the open branch—down to where the bend begins—must be poured out. This is done by gradually inclining the tube over horizontally, the short or closed branch being held *below* the longer or open one.

Next a thermometer is inserted, as shown in the cut, into the open branch, and the U-tube immersed in a suitable liquid. For substances boiling below 100° C. water is used; for others with higher boiling points, paraffin or sulphuric acid. The bend of the U-tube should be about 10 Cm. from the bottom of the outer vessel, and the closed end of the short arm about 5 Cm. below the level of the liquid. Everything being properly adjusted and supported, heat is very gently applied, so that the mercury in the closed arm sinks very slowly. When both mercury columns are at an exact level, the thermometer is read, and gives the boiling point at the barometric pressure then existing.

If the pressure is not normal, that is, not 760 Mm., the true boiling point may be found from the observed by calculation, or more easily by allowing the level of the two columns to vary by a proportionate amount. For instance, supposing the barometric pressure of the air were 750 Mm., all that would be necessary would be to allow the mercury in the open branch to rise 10 Mm. higher than in the closed one, and then to read off the temperature. This measurement may be made easily by the eye or by a self-made scale, since great accuracy is not usually required.

The most exact results are obtained by allowing the mercury column in the outer leg alternately to rise and to fall below the level in the other, and to read off the temperature each time when the levels become alike. The mean of the observations is then taken.

It is evident that this way of determining boiling points is a most convenient one. It is particularly valuable when only minute portions of the substance are available.

If a tube of the size above described is used, the available space for the vapor is about 2 Cm. Of water, only about 2 Mgm. would, therefore, be required to determine its boiling point. It should not be forgotten that there must always be an excess of the substance.

The tube must be perfectly free from moisture, and the mercury should be pure.

When determining the boiling point of water, the author found a solution of common salt to be preferable to paraffin. Owing to the high heat of vaporization of the water, as compared with the specific heat of paraffin, the different successive determinations were rather far apart.

The examples given by the author show that this method gives exceedingly close and correct results:

Carbon disulphide, mean of 6 determinations (46.4 to 47.1)	46.8° C.
Toluol (109.9–110.6)	mean 110.3° C.
Amylic alcohol (129.9–130.3)	mean 130.2° C.
Aniline (181.5–181.9)	mean 181.7° C.
Naphthalin (214.6–215.5)	mean 214.9° C.

Lard and its Adulterations.

Dieterich, in the last issue of the *Helfenberger Annalen*, remarks that the melting point of pure lard, as given by the last German Pharmacopœia, viz., between 36° and 42° C., can be relied upon as a criterion only when the method by which it is determined is also given, since the same fat will show different melting points according to the method used. Dieterich determines the melting point by enclosing the fat in a glass tube open at both ends, which is immersed (vertically) in water. The temperature at which the fat rises in the tube is taken as melting point.

According to Dieterich the melting point of lard tried out by himself varied between 40° and 43° C.; of lard bought in the market, 38° and 44° C. Hübl's iodine number, in the case of the former, was between 51 and 58.9; in the latter, between 50.7 and 62.9.

The German Pharmacopœia gives no test showing the absence of foreign fats. Dieterich thinks that Hübl's iodine test ("iodine number") is a very valuable criterion. He has also examined the various processes recommended in recent times for the detection of cottonseed oil in lard, but does not find any of them reliable.

Special attention is called to the fact that Becchi's silver test and Labiche's acetate of lead reaction, although valuable when applied to lard adulterated with unheated cottonseed oil, *fail to give any reaction* if the cottonseed oil had, previous to its admixture with the lard, been brought to a temperature at which it emitted fumes for one or two minutes. Lard adulterated with oil of this kind does not respond to the taste. And it is quite likely that lard manipulators already know this fact and work accordingly.

Concerning "Wiesbaden Elixir" and Aloes.

John Aulde, M.D., of Philadelphia, in the *Medical Record* of June 6th, says:

Referring to my paper on aloes which appeared in the issue of the *Medical Record* for December 6th, 1890, I beg leave to correct the formula for the "Wiesbaden Elixir," which, owing to the absence of the original, I gave from memory, expecting to make the necessary corrections when proof came to hand. Unfortunately the matter was overlooked, and the formula, as published, is defective. I am prompted to make this statement because of the numerous applications I have had from manufacturing chemists to have me approve of the pills, capsules, etc., which they had taken the trouble to prepare for the purpose of supplying physicians with this product. The original formula, as written by the Wiesbaden physician, is as follows·

℞. Spanish Saffron	gr. xx.
Socotrine Aloes	℥ i.
Boletis Laricis	ʒ i.
Powdered Myrrh	ʒ iss.
Powdered Rhubarb,	
Powdered Angelica Root	āā ʒ ij.
Zedoary Root,	
Gentian Root,	
Calamus Root	āā ℥ ss.
Brandy	O. ij.

M. Sig.: Eight or nine drops to be taken half an hour after meals, on sugar, or mixed with a little brandy or wine. Cold water must not be taken soon after the medicine. [illegible]

At the time this formula was published I suggested that it would be convenient to have it dispensed with a little glycerin, because water causes a precipitate. A little wine may be substituted, unless there be objections from a moral standpoint, but I think this can be effectually met by having the product evaporated and presented in the form of a mass, either in pill or capsule, or it might be enclosed in wafers to suit the taste of the patient. I beg leave to say in this connection that the remedy is very much improved by age, and it will be found in practice that stock six months old or more will be more satisfactory than that which has been freshly prepared. For all practical purposes, both the saffron and myrrh may be omitted, and if the product is put up in the form of a solution the elimination of these ingredients adds greatly to its appearance. It will be superfluous for me to add any suggestions in regard to the care which should be exercised in selecting the different drugs included in this combination, and it will not be necessary to point out the need for the most thorough and long-continued maceration in order to secure the active principles together with the peculiar aroma characteristic of this excellent preparation. Instead of brandy, I think diluted alcohol would answer the purpose quite as well when the product is intended for use in the solid or semi-solid form ; but when it is to be used in the form of a liquid, I much prefer the brandy; it can then be given alone or in combination with a simple tincture, as gentian, calamus, or cinchona.

It will be observed that aloes is the only active purgative remedy, the other ingredients in the doses used being principally carminatives, and, as the dose of aloes is sufficiently large, I hope no one will so improve upon the original as to substitute purified aloes, or aloin, the active principle. There can be no doubt, in the minds of practitioners familiar with the facts, that irreparable injury attends the attempts on the part of physicians and the laity to secure active purgative effects from the continued use of aloes, and I repeat here what I hinted at in the paper referred to, that many a case of Bright's became possible only through the abuse of aloes or other similar purgative. When it is stated that the now popular pill containing aloes, strychnine, and belladonna is made by manufacturing chemists, who are not supposed to be doing a very extensive business, in lots of one million at a time, we can have some conception of the immense number of these that are yearly consumed. While admitting that the combination is efficient, the marked increase within the past few years of kidney troubles seems to be in close relation with the popularity of the pills referred to, and I hope the medical profession will take the necessary steps to arrest this demoralization and put a stop to the destruction which unwise medication is producing.

Another suggestion might be added, viz.: that the Wiesbaden elixir in the form of a bolus could be advantageously combined with oxgall, which, as is well known, has a favorable effect when exhibited in combination with aloes. Oxgall, moreover, supplies an artificial antiseptic, assists in the digestion of fats and starchy food products, and thus serves to prevent the formation of poisonous products in the intestine. I have no doubt but that a combination of this character would be found useful in a very large number of cases where aloes is indicated, and think it is but a question of time when a combination of this nature will take the place of aloin, strychnine, and belladonna.

Chloroform Purified by Cold.

THE artificial production of cold is about to be practically applied by M. Pictet, under a patent, in the purification by congelation of various liquids, and amongst others chloroform. It is stated that when the temperature of the purest brands of commercial chloroform is lowered to —70° C., partial crystallization takes place. If the crystals be removed and the refrigeration increased, at a temperature below —100° C. the chloroform itself crystallizes out, and can be removed from a residuary impure fraction. The chloroform so purified is described as being, at a temperature of 15° C., a clear liquid of specific gravity 1.510, which can be preserved unaltered for an indefinite time, even in daylight, in white bottles and without any addition of alcohol. Upon shaking it with concentrated sulphuric acid, no coloration of the latter occurs, even after a long time. When shaken with chromic acid mixture no reduction takes place, the mixture remaining yellow.—*Pharm. Journ.*

◆

Adulterated Carmine.—Attention is called in Germany to the fact that there is a carmine on the market which is labelled "Karmin, ordinär," and which is a mixture of lead eosin, china clay, and lead sulphate. It is only partially soluble in solution of ammonia, and the solution is strongly fluorescent. Another kind is labelled "Karmin, antik." It has a very beautiful appearance, and as the greater part of it is soluble in ammonia, it may be taken as genuine by some. It is a mixture of baryta and red corallin.—*Chem. and Drugg.*

MUCILAGE BOTTLES.

A MUCILAGE bottle which prevents evaporation, and overcharging of the brush, is suggested by a writer in the *Bulletin of Pharmacy* and illustrated herewith (Fig. 1). A description is hardly requisite. We have to suggest a modification of the brush handle, as shown in Fig. 2, and which consists in the use of a weighted thimble for a cap. Tinfoil or lead enough to fill about half of a cheap thimble is first packed about the handle and the whole held in place by a layer of sealing wax. Such an arrangement will enable the gum brush to be laid on the table without the brush touching, the taper of the thimble raising it well above the horizontal. By filing a hole near the bottom of the glass tube, the mucilage will rise to that point only, even when the bottle is full, so that the brush will always take up the same amount. The relative size of the tube is better shown in Fig. 1.

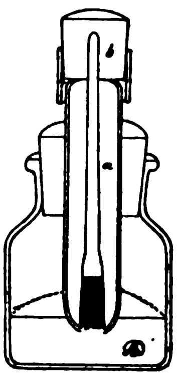


FIG. 1.

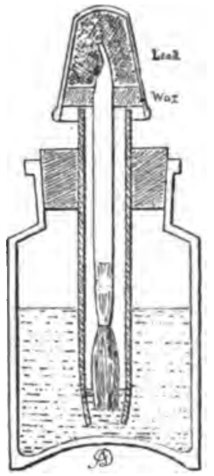


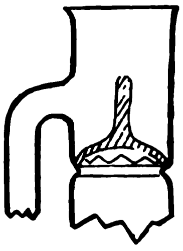
FIG. 2.

AN IMPROVED EXTRACTOR.

MESSRS. W. L. GADD and S. LEES have devised a simple modification of the ordinary Soxhlet tube for fat extraction, when used for extracting very light or finely-powdered substances, which gives excellent results in their hands, and which, they believe, may be of service to other chemists under similar circumstances.

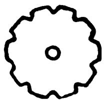
The samples under examination were very fine, floury deposits, which, when agitated even slightly with the ether employed for their extraction, were thrown up into suspension and subsided again only very slowly; and one sample was so light that great care was necessary in handling the weighed quantities, as a slight motion was sufficient to cause clouds of dust to arise from the substance.

As the samples, when treated with ether, passed entirely through both glass and cotton-wool plugs placed at the bottom of the Soxhlet tube, the weighed quantity for each estimation was carefully placed in an ordinary star filter, previously extracted with ether, and the filter and its contents pushed down the tube until it rested on the plug of glass wool at the bottom.



SECTION

The modified tube used was specially made with an annular projecting inside ring, on which rested an inverted glass cup, provided with a short stem to facilitate removal, and having cut in its periphery a number of channels or grooves.



PLAN

The down rush of ether from the condenser, when the siphoning action took place, was received by this glass cup, and, passing through the channels mentioned, flowed quietly down the sides of the tube without in the least disturbing the material in filter, which was rapidly and thoroughly extracted without any of the powder passing into the tared flask; whilst previous attempts to use the ordinary extractor had resulted in the whole of the material being speedily washed out of the filter and finding its way into the weighed flask.

The authors have repeatedly used their modified tube for extracting a variety of substances, with very satisfactory results, and they believe it can be made without adding materially to the cost of the ordinary Soxhlet extractor.—After *Chem. News.*

Assay of Cinchona.

The following method of assay of cinchona bark, which presents a few features, not new in themselves, but apparently combined with judgment, has recently been proposed by W. Haubensak (in *Schweiz. Wochensch. f. Pharm.*, 1891, 147).

Place 20 Gm. of cinchona bark in very fine powder into a flask of the capacity of ½ liter (1 pint), add 10 C.c. of water of ammonia (specific gravity 0.960) and 20 C.c. of 94-per-cent alcohol, shake thoroughly, and then add 170 C.c. of ether. Agitate repeatedly during two or three hours, then pour off 100 C.c. of the clear liquid [which represents 10 Gm. of bark] into a flask or, better, separator, containing 50 C.c. of water and 2 C.c. of diluted sulphuric acid (specific gravity 1.117). The quantity of the acid must, in some cases, be increased. It should be so adjusted that when the mixture has been thoroughly agitated, and all the alkaloids have passed over into the aqueous layer as sulphates, the latter will still have an *acid reaction*. Separate the acid, aqueous solution of the alkaloidal sulphates (which has a yellowish tint) from the ethereal layer, warm it gently so as to dissipate the ether still retained by it, and return it to the previously cleaned or to a new separator. Add 30 C.c. of chloroform, then a few drops of solution of soda, sufficient to separate the alkaloids, and shake for some minutes. When the chloroform layer is clear, draw it off into a dry, carefully tared flask, and repeat the extraction of the residuary liquid in the separator, by means of 20 C.c. of chloroform, as long as any alkaloid is shown to be present. This is best ascertained by removing a few drops, acidulating, and testing with iodized solution of iodide of potassium or with Mayer's solution. When either of these no longer produces a precipitate, all alkaloids may be regarded as removed.

The chloroformic solution is evaporated, or the chloroform distilled off, and the residue dried at 100° C. to constant weight. This residue is usually of a yellowish-brown to brown tint, according to the kind of bark it was obtained from, but is soluble completely to a clear liquid in acidulated water.

Eucalyptus Oil in Treatment of Scarlatina.

Dr. C. K. Bond, a resident medical officer in a Liverpool fever hospital, has a letter in the *Lancet* of June 6th, giving his experience with the use of eucalyptus oil in forty-seven consecutive cases of scarlet fever (for which it has been recommended). The conclusion arrived at from a consideration of these cases is that, as a curative agent, it possesses no value; that it neither mitigates the severity nor modifies the course of the disease; that it fails to prevent serious complications and sequelæ arising in due course, and that as an auxiliary to the ordinary methods of treatment it possesses no obvious advantage.

Preparation of Museum Specimens.

Dr. R. Thoma, of Dorpat, recommends a method for retaining the natural color of anatomical and pathological materials: After slight washing with water they are to be placed in one or the other of the two solutions made as follows:

	A.	B.
Crystallized Sulphate of Sodium	100 Gm.	60 Gm.
Chloride of Sodium	100 "	100 "
Chlorate of Potassium	100 "	30 "
Nitrate of Potassium	10 "	10 "
Water	to 1 liter	1 liter.

After immersion for eighteen to twenty-four hours the specimen is placed in alcohol, which requires changing once or twice only. In the case of large organs, such as a liver or spleen, it is best to immerse only a portion. These preparations retain their appearance for several months, the only notable change being the conversion of the red of hæmoglobulin into the browner tint of methæmoglobin. The structure is not rendered unfit for subsequent microscopical examination.—*Lancet*, from *Centralb. f. Allg. Path.*, etc.

BIBLIOGRAPHY.

Materia Medica and Therapeutics, with Especial Reference to the Clinical Application of Drugs. By John V. Shoemaker, A.M., M.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine, and Clinical Professor of Diseases of the Skin, in the Medico-Chirurgical College of Philadelphia, etc., etc. Vol. II. of a Treatise on Materia Medica, Pharmacology, and Therapeutics. Being an Independent Volume upon Drugs. Philadelphia and London: F. A. Davis, 1891. Pp. 662, 8vo. Muslin, $3.50; leather, $4 50 net.

This new treatise is comprehensive, for it contains not only official articles, but also includes the remedies recently in vogue to an extent which is quite surprising, and describes drugs and preparations somewhat in disuse, but which are nevertheless of value and desirable. It is arranged alphabetically and with variations in size of type which facilitate ready reference. Under each title the subject has, as sub-titles, Preparations, Pharmacology, Physiological Action, Toxicology, Antidotes, Therapy, etc.; and in connection with the latter are a sufficient number of formulas to illustrate the customary or preferable modes of use. A separate chapter is devoted to formulas for hypodermatic use. There is a very complete table of minimum and maximum doses, and an index which nearly fills ten three-column pages of small type. An admirable feature is the insertion of foot notes giving references to other literature.

This is, in all respects, the most satisfactory text book on the subject in our language, and cannot fail to be the one in most general use in this country for some time to come.

Veterinary Counter Practice: A Treatise on the Diseases of Animals and the Most Suitable Remedies for them. Written expressly for Chemists and Druggists by Qualified and Experienced Members of the Royal Veterinary Colleges. London: *The Chemist and Druggist*, 42 Cannon St. Pp. 268, small 8vo. Muslin, 3s. 6d.

This little handbook corresponds in appearance and general character to former publications from the same source, and is intended for the information of pharmacists, who, in many other respects, are more competent to give advice regarding the treatment of diseases in animals than many who assume to have such ability. It is partly a reprint of matter already published, revised and considerably amplified for this particular work. Its contents comprise information upon the diseases of domestic animals in general, followed by a description of the diseases and treatment of such maladies as commonly occur among horses, cattle, sheep, pigs, dogs, and poultry, and special chapters relating to eye diseases, and wounds and sores. Numerous formulas are given, and an appendix contains the text of British laws relating to sale of horses, contagious diseases, and veterinary practice.

Flavoring Extracts. By Joseph Harrop, Ph.G., of Columbus, O.

The author has favored us with advance sheets of 152 pages of a work relating to the preparation of such flavoring extracts, syrups, essences, coloring materials, etc., as pertain to the business of druggists. Brief descriptions—rather too brief, it seems to us—are given of the materials to be employed, although further information is scattered through the work in a manner to render it more valuable, perhaps, for the tyro, but rather confusing. A chapter on Flavoring Extracts is followed by one on Flavoring Essences; another on Syrups; still another on Colorings; and, finally, an Appendix containing matters which will probably go into the body of the text in another edition.

The writer shows evidence of a practical familiarity with the subject, and accompanies his numerous formulas with a running commentary of remarks, advice, opinions, etc., which give to the work a value much greater than belongs to ordinary formularies of this sort. Besides other information the pages at hand contain over 160 formulas.

A TEXT BOOK OF BACTERIOLOGY. By CARL FRAENKEL, M.D., Professor of Hygiene, University of Königsberg. Third edition, translated and edited by J. H. LINSLEY, M.D., Professor of Pathology and Bacteriology, Medical Department of the University of Vermont, etc., etc. New York: William Wood & Co., 1891. Pp. 380, 8vo. Muslin, $3.75.

During a course of instruction in Berlin in 1890 the excellence of Dr. Fraenkel's treatise became impressed upon the translator, and this edition is, therefore, presented as the best available text book on the subject in the English language. It is not offered as an exhaustive treatise, and does not quote other literature—which, for a German book, is something quite unique. It is not illustrated, but the reader will quite likely know already what a microscope is, and will not require a picture of a test tube to render its uses comprehensible. There is a good index, good type, and good paper, and the translator seems to have so far eliminated German idioms as to render the text in good English.

HEREDITY, HEALTH, AND PERSONAL BEAUTY. By JOHN V. SHOEMAKER, A.M., M.D., etc. Philadelphia and London: F. A. Davis, 1890. Pp. 422, 8vo.

This is intended for non-professional readers, and is worthy of unqualified praise as regards the nature of the information it affords and the manner in which it is presented. Commencing with a consideration of conditions which contribute to general healthfulness, the author comes finally to the special care of the skin and its appendages, and the physical elements of beauty, concluding with explicit directions and formulas for such articles as are serviceable as cosmetics or remedies. It is altogether one of the most practical as well as most readable works of the kind that have yet appeared.

PRACTICAL TREATISE ON ELECTRICITY IN GYNÆCOLOGY. By EGBERT H. GRANDIN, M.D., and JOSEPHUS H. GUNNING, M D. Illustrated. New York: William Wood & Co. Pp. 180, 8vo. Muslin, $2.00.

This latest addition to our monographs on electro-therapeutics is by authors of extensive experience in this field, and embraces the recent improvements in methods and apparatus. Its contents relate to general considerations and apparatus; routine uses of electricity; electrolysis; static, franklinic, or frictional electricity; treatment of malignant growths by galvano-cautery, and the use of electricity in obstetrics.

THE CALENDAR OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 1891. London: Pharmaceutical Society of Great Britain, Bloomsbury Square. Pp. 551, 8vo. Muslin, two shillings.

This calendar furnishes a very complete guide to the details of the work of the Society, to the legal aspects of British pharmacy, and to its membership.

PROCEEDINGS OF THE OHIO STATE PHARMACEUTICAL ASSOCIATION at its twelfth annual meeting, etc., etc. Cleveland, Ohio: 1890. Pp. 126, 8vo.

This report is one of the most creditable publications of the kind which come to us.

TWENTY-SIXTH ANNUAL REPORT OF THE ALUMNI ASSOCIATION, with the Exercises of the LIX Commencement of the PHILADELPHIA COLLEGE OF PHARMACY, for the year 1889-90. Philadelphia: 1890. Pp. 228, 8vo.

In a lecture delivered before the Association last year the speaker gave a number of rules which should govern the use of the eyes, and which may be found on page 68 of this report. We observe that the Association does not appear to have especially regarded the one which reads: "2. Read only good-sized, black letters, printed on white paper, sufficiently thick to prevent confusion from the print on the opposite side." We are happy to say that it is all right otherwise.

◆

Resopyrin.—By combining resorcin and antipyrin Roux has obtained a mixture to which he gives the name of resopyrin. It is an odorless body of feebly pungent taste, which crystallizes in colorless, oblique, rhomboidal prisms; it is soluble in 100 parts of alcohol, in ether, and in chloroform, but is scarcely soluble in water.—*Journ. de Méd., de Chir. et de Pharmacol.*, April 20th, 1891.

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EDITORIAL.

Now that the bottom has dropped out of much of the agitation over cut prices, and the cutters and manufacturers of nostrums are at liberty to take breath and see how far they have benefited by such a windfall of gratuitous advertising, let us see, if we can, where the retailing apothecary stands. He, too, must have got a certain amount of advertising, or at least of notoriety, as a result of so much talk and pamphleteering, discussion and resolving. What is the impression which would naturally be left in the minds of outsiders?

First, that pharmacists claim for themselves the sole privilege of supplying the public with preparations for the proper composition of which they cannot vouch; whose ingredients they know but little, if anything, more about than is patent to any one who can read the label attached to the containers and the pamphlets and testimonials which accompany them. While assuming no more responsibility in regard to the correspondence of the true merits of these wares with the claims made for them by their makers than do the fancy-goods dealers by whom they are also sold, the pharmacist, nevertheless, claims the right to get a larger price for them for the reason that the income from this source has become so large a part of the pharmacist's dealings, and the profit derived from their sale is so essential to his welfare, that the reduction of price to that at which they may be bought in the general stores threatens the loss of the general profit derived from his business, or its diminution to such a degree that it will continue no longer to be fairly remunerative.

This is the general purport of scores of communications and addresses which have been made to pharmaceutical societies and publications during the past year, culminating in resolutions and declarations directed toward the makers of, and wholesale dealers in, these commodities, accompanied, sometimes, with threats of boycotting in case the demands of the retail trade in regard to restricting the price and sale of these wares are not complied with.

Second, it is not very long since the sentiment of the pharmaceutical profession in regard to the handling of these same goods was quite different. It was then the customary thing, when the question of the sale of "patents" came before a pharmaceutical association, to hear, from those who spoke or read papers, a more apologetic tone. These things were sold reluctantly. Some went so far as never to display them for sale or permit their advertisements or circulars to be seen about their establishment. If they were called for they were produced, and the vender declined to say of them anything favorable or otherwise—simply remarking, if his opinion was asked, that they were among the things which the public considered the apothecary ought to sell, and therefore they were kept for sale to those who wished them and were willing to pay the regular price put upon them. Personally, the apothecary preferred to sell something that he knew about and could guarantee to be just what was claimed for it. That was why he had taken the trouble and gone to the expense of studying such branches of medicine as relate to pharmacy, and was not a simple merchant.

Now, which of these two attitudes correctly represents the pharmacist; or do they indicate that since the days when the latter sentiment prevailed the sentiments and policy of the trader have overtopped those of the professional man, and that they are both, in a measure, correct?

Again, how does the present attitude of the pharmacist—if the recent discussions of the sale of "patents" and its importance as a feature of his business are to be accepted as a true indication—bear upon his relations with the physician? Is there anything in it calculated to increase their mutual dependence upon each other?

A RECENT issue of *La Pratique Médicale* (May 5th, 1891) contains an account of the explosion of a lot of compressed tablets of chlorate of potassium in the pocket of a person who carried them wrapped up in a piece of paper. It is supposed that a sudden "shock," caused, while he was sitting down, between the tablets and a penknife he carried in his pocket, produced the explosion, which is said to have given him a severe burn.

Similar stories regarding chlorate of potassium have frequently been published. In most cases which we have followed they have first appeared in some newspaper and only gradually found their way into the professional press. The features surrounding each story usually stamp it as of about the same character as the "chloroform-soaked handkerchief," relied upon by the unsophisticated as an excuse for some deed of omission or commission, or the tale of the "Neptunian anaconda," so commonly revamped about this time of the year.

We are, of course, fully aware of the possibilities of chlorate of potassium to act as a dangerous explosive under certain circumstances. We know that it needs to be brought merely in contact with certain agents to make it an exceedingly violent explosive. Or it may become so while being triturated or compressed, or by mixing it with certain substances (such as nitrobenzol) and imparting to it a violent shock such as only a "detonator" can impart. But we do not believe that chlorate tablets will explode by being struck by a penknife in one's pocket. If this were so, chlorate of potassium could not be safely powdered, or handled as a commercial article (in casks or boxes), but would have to be treated like gunpowder or dynamite. It is about time that silly canards like this should at least be excluded from professional papers.

IF it *is to be* the fate of the apothecary to serve as a gratuitous agent for the public supply of postage stamps, we suggest that he turn this service to his advantage as a means for advertising, and our proposition is as follows:

Make up a number of books, with about eight leaves of paraffin paper in each, and a cover of heavy paper having the apothecary's business card and a calendar on the outside, and the postal rates and a short and attractive announcement of his own "specialties" on the inside.

These leaves should be about two by three inches, which will be a trifle larger than six postage stamps. By folding together, down the middle, a group of twelve stamps in three rows of four each, so that the faces come together, and placing them between two of these leaves, the adhesive side will, by a little warmth and pressure, or in summer by pressure alone, adhere very slightly to the paraffin paper—not so firmly, however, as to prevent easy separation, although quite enough to prevent their falling out.

The editor of this journal has made such a book for his personal benefit, and has used it at the seashore during the hot months of the past two years. Before that time a sheet of stamps had to be pinned against the inside of a closet door or laid on its face in a drawer specially reserved for this purpose; or the stamps had to be attached to blank envelopes as soon as they were obtained, or else there was trouble. To carry them in a pocketbook was out of the question; to shut them between the leaves of a book still worse; and it became then apparent why so many people, with infrequent occasion for correspondence, prefer to buy a single postage stamp at the time they need it, and never have a few on hand if they can avoid it. The paraffin paper settles that difficulty most effectually, and sticky stamps have their affinity for surrounding objects held completely in check until the suitable occasion arises for its manifestation.

If our readers will accept this hint and make up a few of these holders for their troublesome stamp customers, they will not only save much time consumed in selling single stamps, but will put a good advertisement into the pocketbook or portfolio of the possessor. When one of the books is given, explain its peculiar advantages (but not its essential nature), and if the recipient hasn't got a stamp to try it with, give him one as a "chromo." He won't throw away a stamp, and he generally can't carry it without the book, and there are nine chances in ten that he will show the stamp and the book (and, incidentally, your business card) to several of his acquaintances.

If the business card mentions the willingness of the pharmacist to take special pains to fill orders by mail for things his patrons may want while they are absent from home, it would come well in this connection, and so would a reference to some particularly nice things recommended for relieving sunburn, freckles, mosquito bites, ivy poisoning, prickly heat, etc.; or to the fact that his supply of cigars is selected with reference to a good quality, and that in sending them by mail to customers at the seashore a special air-tight envelope is provided for the boxes, to exclude the atmospheric conditions which ruin the flavor of even the choicest tobacco; or that his toilet waters and perfumes can't be dispensed with when their merits are once appreciated.

Crystallized Chloroform.—The Swiss physicist, Raoul Pictet, has discovered a method of preparing crystallized chloroform for commercial use. Kept in this form it cannot undergo any changes or contain any impurities.

PHARMACEUTICAL NEWS AND NOTES.

NEW JERSEY.

The twenty-first annual meeting of the New Jersey Pharmaceutical Association, held at Trenton on the 27th and 28th of May, was well attended and successful in all respects. Daniel Bechtel, Esq., the mayor of the city, in welcoming the Association, made one of the most successful addresses of the kind that we have yet known. It was so short, pointed, and sensible that we reproduce it as a model worthy of very general imitation.

"**Gentlemen**: I am very happy indeed to open the doors of our city to your Association. The details of your gathering I know nothing about, and therefore can say nothing on that subject, but I do know that your labors here are intended to benefit the State and are indorsed by the citizens of Trenton. Therefore, as the chief executive of this city, I give you a hearty welcome."

The president, Mr. Maxwell Abernethy, of Jersey City, referred, in his address which followed, to the spirit of progress which led to the formation of the Association and its subsequent growth and influence; to the need for decreasing the number of working hours for both proprietors and employees; to the increasing disposition on the part of young pharmacists to keep abreast of the progress in scientific pharmacy and the importance of encouraging their efforts; to the favorable reception of delegates from the Association to the New Jersey Medical Society, and the desirability of using the mutual representation to influence physicians to restrict their prescriptions to the official and commonly accepted remedies of the Pharmacopœia, National Formulary, or higher class of pharmaceutical literature in preference to those made by so-called pharmaceutical specialists. A standing Committee on Finance was recommended, and an account was given of the recent attempt to secure the adoption of a new pharmacy law. In the matter of exemption from jury duty greater freedom was advocated. A per-diem allowance to delegates was suggested, and attention was directed to the increasing tendency to avoid the provisions of the present pharmacy law. The present disturbances in the drug trade were referred to, and measures calculated to diminish their severity were proposed for consideration, chief of which was the formation of a pharmaceutical laboratory in the State, under the auspices of the Association and for the benefit of its members.

The following names were adopted as those of candidates from whom the Governor shall select two as members of the State Board of Pharmacy: W. R. Laird, H. P. Reynold, A. L. Avery, A. S. Cook, and W. Scott-Taylor.

A committee, consisting of Messrs. Taylor, Avery, Alkers, Linnet, and Holtzhauer, was appointed to formulate a plan for a laboratory, as suggested by the president, and make it known as soon as possible to the members of the Association.

The Board of Pharmacy reported that of 96 candidates examined during the year 63 had been found qualified.

The following-named officers were elected: President, F. R. Davis, Morristown; vice-presidents, E. B. Jones, Mount Holly, and W. S. Taylor, Trenton; secretary, Charles F. Dare, Bridgeton; treasurer, M. W. Townley, Newark.

Plainfield was selected as the place for meeting in 1892. The exhibit held during the meeting was large and interesting, but a source of much noise and disturbance during the sessions. A dinner on the evening of the second day was given at the Trenton House, at which many ladies were present, and good speeches followed a very appetizing *minu*. Among other good things Mr. R. I. Shaw, of Plainfield, told of an interview between the Committee on the Pharmacy Bill and the presiding officer of the Legislature which occurred some time ago, and how this functionary, supposing that pharmacy must, of course, relate to the *farm*, referred the bill to the Committee on Agriculture.

We have to thank **Mr. Dare**, the secretary, for kind services in connection with the foregoing synopsis of the proceedings.

OHIO.

The Ohio Pharmaceutical Association met again at Dayton after an interval of eleven years. One hundred and fifty members were present, and 60 new members were added to the roll, which now numbers 922. The scientific business included a paper by Prof. J. U. Lloyd, continuing the subject of Assaying Fluid Extracts, an abstract of which may be found elsewhere in this number; another on the same topic by Mr. Young, of Ada; two papers by Dr. Spengler, on "The Delicacy of Tests for Phenol," and "Examination of Sodium Salicylate"; Prof. H. A. Weber, of the Ohio University, upon the "Cause of Acridity of Arum Maculatum."

The election of officers and committees resulted as follows: President, M. A. Burkhardt, Dayton; vice-presidents, Philip Lehr, Cleveland; Geo. Eger, Cincinnati. Executive committee, J. G. Spengler, Dayton; G. W. Brown, Wilmington; S. E. Allen, Akron. Nominations for Board of Pharmacy, Charles E. Ink, Columbiana; W. H. Haven, Findlay; W. R. Ogier, Columbus; Albert Menninger, Cincinnati; J. H. Von Stein, Upper Sandusky.

COMMITTEES.

Trade Interests.—William Melville, Lima; A. Menninger, Cincinnati; H. Kuhlmeier, Cleveland.

Papers and Queries.—W. Simonson, Cincinnati; E. S. Ely, Barnesville; B. S. Young, Ada.

Pharmacy Laws.—John Byrne, Columbus; Geo. Latin, Dayton; A. Burger, Toledo; Thos. Johnson, Steubenville; Julius Greyer, Cincinnati.

Unofficial Formulas.—J. H. Von Stein, Upper Sandusky; E. Goodman, Cincinnati; C. T. Inman, Akron; Philip Acker, Cleveland; T. J. R. Peffner, Delaware.

Insurance.—J. J. Hovecamp, J. G. Stierle, Versailles; W. H. Haven, Findlay; C. N. Nye, Canton; A. C. Lewis, Bucyrus.

Education.—G. B. Kauffman, Columbus; F. T. Bower, Toledo; John A. Nipgen, Chillicothe.

Adulterations.—C. T. P. Fennel, Cincinnati; H. C. Cook, Columbus; N. Rosenaser, Cleveland.

Delegates to N. D. A.—G. L. Heckler, Cleveland; A. Menninger, Cincinnati.

Delegates to Pharm. Soc. of Amer. Med. Assoc.—J. U. Lloyd, Cincinnati; L. C. Hopp, Cleveland; G. B. Kauffman, Columbus.

The fourteenth annual meeting will be held at Canton on the second Tuesday of June next. The Association is fortunate in retaining the services of Mr. L. C. Hopp, of Cleveland, as its secretary.

Judging from the report at hand, the Committee on Adulterations must have found the drug supply of Ohio markets so far above criticism that they were forced to go outside of this line of goods for materials and report upon pepper, mustard, and coffee.

KENTUCKY.

The fourteenth annual meeting of the Kentucky Pharmaceutical Association convened in the Senate Chamber at Frankfort, Ky., on Wednesday, May 20th, at 3 o'clock, under the most auspicious circumstances. The weather was perfect, and the hills around the Kentucky capital were never more lovely. The meeting was called to order by the president, J. J. Brooks, of Richmond. Dr. U. V. Williams, on behalf of the citizens of Frankfort and the local druggists, delivered the address of welcome, which was responded to by M. C. Peter, of Louisville.

The reports of the various standing committees indicated a most satisfactory condition of the Association in all its departments. Seventeen applicants were received into membership. The series of eight resolutions adopted by the American Pharmaceutical Association at New Orleans, concerning a "Plan to Prevent Cutting of Prices on Proprietary Articles," were unanimously indorsed. W. S. Johnson, of Henderson, offered the following resolution, which was adopted:

"*Resolved*, That the Legislation Committee take such steps as may be deemed necessary to obtain an amendment to the present pharmacy laws, placing druggists on a footing with grocers in the collection of debts, and make their claims against decedents for necessaries furnished during last illness preferred."

Among the papers read were the following: "Triturations," by W. Chapman, of Frankfort. "Solubility of the Coating of Pills," by G. Holzhauer, Newport. "Forty Years in the Retail Drug Business," by E. C. Pfingst, Louisville. "Our Commercial Status," by M. C. Peter, of Louisville.

The Committee on Nominations named the following officers for the ensuing year: President, W. Chapman, Frankfort; 1st vice-president, J. J. Samuels, Danville; 2d vice-president, J. A. Haynes, Owensboro; 3d vice-president, G. Holzhauer, Newport; permanent secretary, J. W. Gayler, Frankfort; corresponding secretary, T. G. Julian, Mt. Sterling; treasurer, H. Jett, Cynthiana.

A visit to the Kentucky penitentiary, and a carriage drive to the cemetery and other points of interest about the city, were among the social features. [What peculiar ideas of festivity those Frankfort people have!—Ed. Amer. Drugg.]

The meeting closed with an elegant banquet, at which the following toasts were made and responded to: "Our Commonwealth," Gov. S. B. Buckner; "Scientific Pharmacy," Dr. J. P. Barnum, Louisville; "The Press," Col. E. Polk Johnson, Frankfort; "The Pharmacist at Large," M. C. Peter, Louisville; "Our Profession," W. S. Johnson, Henderson; "The State Board of Pharmacy," Dr. Wiley Rogers, Louisville. Major H. T. Stanton, of Frankfort, read a poem prepared for the occasion. The meeting then adjourned until May 28th, 1892, at Carrollton.

FLORIDA.

The fifth annual meeting of the Florida State Pharmaceutical Association met at Jacksonville on the 19th, 20th, and 21st of May in the parlor of the Everett Hotel, with about sixty members present.

Mr. D. U. Fletcher, on behalf of the city of Jacksonville (in the absence of Mayor McQuaid), made an eloquent address of welcome, which was happily responded to by the president, Mr. W. A. Rawls, of Tallahassee.

Following this, President Rawls delivered the usual address to the members.

Twenty-five new members were unanimously elected, viz.:

L. P. Lawrence, Orlando; S. A. Lowry, Palatka; E. M. Williams, Ft. Myers; Dr. J. M. Jackson, Bronson; Aurelio Martinez, Key West; P. G. Guichard, Tampa; J. H. Haughton, Palatka; L. F. Sherman, St. Augustine; D. Burgheim, Savannah, Ga.; R. W. Cobb, Pensacola; J. W. Matchett, Tampa; G. B. Smithon, Lake City; W. C. Simmons, Monticello; Dr. Victor Lafosse, Ocala; J. M. Townley, Kissimmee; Dr. Geo. Macaulay, Mandarin; E. K. Norwood, Jacksonville; W. H. Mook, Jacksonville; W. R. Fenner, Jacksonville; H. R. Thomas, Jacksonville; G. W. Williams, Jacksonville; Thomas Clarke, Jacksonville; Dr. H. Sohl, Jacksonville; Walter Hay, Jacksonville; H. L. Irwin, Jacksonville.

Resolutions respecting the death of Dr. A. R. Spencer and Mr. W. E. McDougal, two valued members, were adopted and ordered spread on the minutes.

The following was offered by A. E. Phillips, relating to the cut-rate nuisance, and adopted by the Association:

Whereas, The practice of cutting prices on proprietary preparations has become in many cities exceedingly hurtful to the legitimate interests of retail druggists, rendering the handling of these goods a burden, and productive of positive loss rather than profit; and

Whereas, This ruinous practice emanates chiefly from department stores, which have no legitimate right to handle such goods, and which resort to the custom of cutting the prices below actual cost merely as a mode of advertising and popularizing their business, in order to enlarge their opportunities to fleece a misguided and unsuspecting public by selling other wares at extortionate prices; and

Whereas, This example in many instances induces certain retail druggists to indulge in the same practice for the same dishonest purposes, thereby not only attempting to gain for themselves excessive profits on other goods, but unmerited praise as generous benefactors of the public, to the pecuniary and moral detriment of their honest competitors; and

Whereas, These practices, though more prevalent in the great Northern cities, are gradually and surely extending their progress and baneful influence further and further southward; and

Whereas, The various associations of manufacturers, wholesale and retail dealers, local, State, and National Pharmaceutical Associations, are moving in the direction of prohibiting further such voracious and ruthless encroachments upon the common rights of honest retail druggists; therefore be it

Resolved, 1st. That this Association denounces the practice of cutting prices on goods which are, or should be, peculiar to drug stores, as dishonorable and productive of results morally degrading and destructive to honest interests.

Resolved, 2d. That in the opinion of this Association the manufacturers and proprietors can, if they will, so control their preparations as to keep them out of the department stores and the hands of other cutters, and that it is their duty to do so and to confine the sale of their preparations to honorable wholesale and retail druggists exclusively.

Resolved, 3d. That this Association, collectively and individually, pledges itself to co-operate with any practicable plan which may be formulated by the manufacturers and proprietors, or by the American Pharmaceutical Association, and acquiesced in by the manufacturers and proprietors, which shall have for its objects the confining of the handling and sale of all proprietary preparations to the legitimate drug trade, without increase of cost, the maintaining of full retail prices, and the exercise of general and secure protection against the "vampires" who have sucked the life blood out of the legitimate profits of retail druggists so long.

The following-named ladies, accompanying some of the visiting members, were unanimously elected honorary members for the session: Miss Jackson, and the Misses Claire, and Lizzie Askew, of Tampa; Miss Smith, of New Smyrna; Miss Akerman, of Palatka; Miss Sistrunk, and Miss Biggs, of Ocala.

Dr. H. Robinson and Messrs. W. A. Dell and J. R. Skipper were appointed a committee to award the medals offered as prizes for the best papers to be read at the meeting. There were five candidates: A. E. Phillips, Sanford; H. C. Cushman, Pensacola; W. H. Lightstone, Jacksonville; J. M. Dixon, Titusville; and L. W. Cherry, Brunswick. The gold medal was awarded to Mr. Phillips,[*] and the silver one to Mr. Cushman. The committee highly complimented the other papers, and pronounced them an honor to the Association and well worthy of honorable mention.

The following officers and committees were elected for the ensuing term: President, A. E. Phillips, Sanford; first vice-president, N. Wooldridge, Jacksonville; second vice-president, H. C. Grove, Ocala; third vice-president, Wm. Aird, Jacksonville; secretary, S. P. Watson, Jacksonville; treasurer, Ed. Delouest, Ocala.

Executive Committee—F. P. McElroy, chairman, Dade City; F. D. Ackerman, Palatka; H. R. Thomas, Jacksonville.

Legislative Committee—T. G. Rawls, chairman, Tallahassee; D. G. Smith, Madison; H. V. R. Schrader, Tallahassee; H. C. Cushman, Pensacola; J. S. Frazer, Ocala.

Trade Interest Committee—Dr. H. Robinson, chairman, Jacksonville; H. C. Grove, Ocala; W. A. Dell, Jacksonville; W. A. Rawls, Tallahassee; R. J. Skipper, New Smyrna.

Papers and Queries Committee—W. H. Lightstone, chairman, Jacksonville; Wm. Anderson, Ocala; R. J. Martinez, Jacksonville; W. S. Turner, Tompkinsville; C. D. Horne, Jacksonville.

Delegates to American Pharmaceutical Association—S. P. Watson, Jacksonville; W. A. Allen, De Land; J. M. Townley, Kissimmee; H. C. Cushman, Pensacola; S. A. Lowry, Palatka.

Alternate Delegates to A. P. A.—A. P. Fries, Jacksonville; A. C. Hankins, Bartow; Dr. J. L. Horsey, Fernandina; Richard Lewis, Marianna; T. E. B. Kernan, St. Augustine.

St. Augustine was selected as the place, and the second

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[*] Mr. Phillips' paper will be found on page 165 of the American Druggist for June 1st, 1891.

Tuesday in April as the time, for holding the next annual meeting. The secretary was requested to advise the local druggists of St. Augustine that it was the sense of the Association that they should not be expected to provide any elaborate entertainment, but, in conjunction with the secretary, arrange a suitable programme and allow the visiting members to pay for tickets, etc., on the same basis as residents.

The Board of Pharmacy held a meeting simultaneously with that of the Association, at which six candidates were examined for registration papers. One was rejected and the others received certificates, viz.: G. W. Williams, Jacksonville; H. R. Thomas, Jacksonville; W. C. Simmons, Monticello; B. G. Bryan, Tampa; G. B. Smithon, Lake City.

NORTH CAROLINA.

THE twelfth annual meeting of the North Carolina Pharmaceutical Association will be held on the 8th and 9th of this month at Morehead City. This is on the Atlantic coast below Cape Hatteras, and is most attractive as a meeting place. The secretary, Mr. F. W. Hancock, of New Berne, advises the purchase of railroad tickets at reduced rates to Goldsboro only, and a return-trip ticket at that place to Morehead City. Those who expect to present papers are asked to inform Mr. W. H. Wearn, of Charlotte, chairman of the Committee on Papers and Queries. A meeting of the State Board of Pharmacy will be held at the same time and place for the convenience of applicants for license. Mr. William Simpson, of Raleigh, secretary of the Board, will give any information that may be desired in relation to the requirements, etc. The Atlantic Hotel offers a special rate of $2 per day, and the Entertainment Committee promises social features which will exceed anything provided during recent years. Mr. R. J. Godding is the local secretary.

PENNSYLVANIA.

AT the meeting of the Medical Society of the State of Pennsylvania, held June 5th, the Society elected as a Committee on Pharmacy: Dr. H. A. Hare, Dr. C. W. Bachman, Dr. J. C. Lange, Dr. W. T. Bishop, and Dr. T. J. Mays.

Dr. Solomon Solis-Cohen, of Philadelphia, read a paper on "Patent Medicines and Newspapers." He forcibly denounced the popular method of advertising proprietary medicines in daily and other journals, and called upon the editors of such papers to assist in eradicating this palpable evil. He claimed that many a patient has suffered not only an aggravation of his condition, but has been hastened into the grave, as a result of adopting some method of treatment recommended in the newspaper advertisements.

A paper on "The Pharmacology and Therapeutics of Euphorbia Pilulifera" was presented by Dr. John Aulde, who dwelt largely on the benefit following the use of this drug in cases of asthma and other bronchial affections.

CALIFORNIA.

DR. W. R. CLUNESS, of Sacramento, president of the California State Medical Society, in an address delivered in April, presented the result of laborious investigation of the custom of paying physicians a percentage on their prescriptions. Inquiries were made in all parts of the United States as to the prevalence of this practice, and in one hundred and six large towns and cities it was shown to exist in sixty-seven and was suspected in thirty-nine.

The custom seems to be extremely and scandalously prevalent in San Francisco. One physician of that place writes:

"I have been repeatedly approached by them (apothecaries), and commissions ranging from 30 to 75 per cent have been offered; indeed, many druggists openly maintain that they can afford, and in fact do give physicians, all the receipts of the first prescriptions, contenting themselves with what they call 'the repeats.' . . . In order not to have patients go to another drug store, one druggist has envelopes which are given to the physician, who seals the prescription in the envelope; another apothecary has prescriptions telephoned to him directly from the doctor's office, and pays for the rental of the telephone. I had one patient tell me that his drug bill was larger than his physician's bill (of course, while under another physician's care)."

There are now two San Francisco druggists who announce a revolt from the system by conspicuous placards, one of which reads: "People's Drug Store; No Commission Paid to Physicians on Prescriptions"; and another bears the legend: "No-Percentage Drug Store."

MISSOURI.

MISSOURI druggists are becoming indignant over the present pharmacy law, which they claim is worse than no law at all. The chief fault of the present regulation is that it cannot be enforced. This causes the law-abiding druggist to go to the trouble and expense of registering, while his less conscientious competitor enjoys equal rights without a thought for the law. Then the clause which permits doctors to register without an examination is a sore in the flesh of the competent pharmacist. The country doctors register as druggists, and then loan or hire out their certificates to men totally ignorant of the drug business, but who desire to compound prescriptions. The lawmakers in other States should take warning and not frame a law after the Missouri statute.

This State is no exception to the rule that it is difficult to secure the enactment of good State pharmacy laws. The progressive Missouri druggists have been at work for four years to amend the present statute and bring it more in accord with the condition of the profession of the day. Two years ago the Legislature took a backward step, and amended the law so that it is worse than before. This session of the legal body has distinguished itself by doing nothing. A bill passed the House, but was pigeon-holed in the Senate, and there it now rests. The plucky druggists of the State are determined not to give up the fight, and are now trying to induce Governor Francis to embody the bill in his call for a special session of the Legislature, and have it taken up as unfinished business. There is but little doubt about the bill becoming a law under such circumstances.

President Bard, of the State Association, recommended the formation of local organizations. This was unanimously indorsed by the Association, and should be carried out by the druggists of the State. The State Association is a good example of what can be accomplished by organized effort. The St. Louis Apothecaries' Association will do as a pattern for the new bodies. It is not cumbersome, and has the power to work, with success as fruit of the effort. All that has been done to restore prices here is directly traceable to the Association. The Kansas City druggists also have a good organization, and the members are not sleeping. The prominent men of these two associations are among the life and sinew of the State Association. Now is the time for active druggists in other sections of the State to come forward and show their colors. Such places as St. Joseph, Sedalia, Jefferson City, Springfield, Carthage, etc., must let the world hear from them.

Drug clerks, like all other persons who work for a living, are constantly hearing of some more eligible location where more money can be made with less exertion. The drug clerks of Missouri form no exception to this rule. But I believe that this State is as favorable as any in the Union for those who compound prescriptions for a living. The wages paid here are not high, but they compare favorably with the salaries elsewhere, when expenses are considered. The cost of living in Missouri is nominal. The climate is not severe in either summer or winter, and is as healthy as can be found in this country. The State pharmacy law is not all that could be desired, but the profession is in a fair condition, and drug clerks have rights which are respected. Competition is not as great here as it is in the East, nor is the country as new and unsettled as the West. This seems to be the happy medium where clerks can find as much to be thankful for as in any place. I refer to good drug clerks, for there are plenty of poor ones here now.

Poor old Robinson Crusoe devised many little contrivances to relieve his distress and render life on the island durable. He was ingenious, and so are some druggists. It is surprising what can be made for use in a store when one sets about it. At least a person will think so who visits the store on Park and Missouri avenues, and owned by H. E. Hoelke, the venerable ex-president of the St. Louis College of Pharmacy. Mr. Hoelke is a druggist and chemist by study and occupation. He has grown gray in the service, and is now ready to show young men (and old ones too) many a little contrivance which saves both time and money. It is well worth the time for a druggist visiting the city to call on him. G. H. Chas. Klie, at 5100 North Broadway, has another store which is a study. The place is large, clean, and system prevails. The stranger who steps in is impressed with an air of "silence and accuracy" that must affect the thoughtful customer who has a prescription to be compounded. This store contains the most complete chemical laboratory of any in the city, and Mr. Klie knows how to make use of it.

The Missouri State Pharmaceutical Association met at Excelsior Springs, June 9th, 10th, 11th, with a larger attendance than at any previous meeting since its organization. Everything was harmonious during the entire three days' meeting, even when the work of the Kansas City Pharmaceutical Association was brought up and discussed. President Bard called the Association to order on Tuesday afternoon, and after a prayer by Rev. J. B. V. Flack, F. D. McCollum, mayor of the city and proprietor of the "Elms," made an address of welcome, asking every member to feel as much at home as if he owned the entire "Elms" and beautiful lawns surrounding it. John S. Moffett responded on behalf of the Association. The president presented his annual address, which was followed by reports of the officers, and the meeting adjourned till the next morning at 9 A.M.

Among the papers read at the meeting were: "Two Explosives used in Pharmacy and Medicine," "Adulteration of Ground Flaxseed with Oil Cake," and "Syrup of Wild Cherry," all by G. H. Chas. Klie, of St. Louis; "The National Formulary," by Francis Hemm, of St. Louis; "Fifty Notes for Druggists," by H. M. Whelpley, of St. Louis; "Methods of Testing the Limits of Impurities in Pharmaceutical Chemicals," by Chas. O. Curtman, of St. Louis; "Volumetric Estimation of Acetates," by Claude C. Hamilton, of Kansas City.

The officers elected for the ensuing year are: President, Francis Hemm, St. Louis; first vice-president, George H. Bennett, Pierce City; second vice-president, G. Howard Willett, Kansas City; third vice-president, R. H. Swinney, Ash Grove; treasurer, Gus V. Meyer, St. Louis; permanent secretary, G. H. Chas. Klie, St. Louis; assistant secretary, Ed. G. Orear, St. Louis; local secretary, L. C. Cravens, Excelsior Springs. The Council consists of W. E. Bard, J. M. Good, C. E. Corcoran, H. M. Pettitt, H. F. A. Spieker.

The following names were chosen, from which the Governor will be requested to select two to serve on the State Board of Pharmacy: Gus Fleischman, G. W. Willett, J. M. Love, S. Breunert, Dr. Franklin, Dr. Pettitt.

The next annual meeting will be held at Excelsior Springs, and all papers to be read before the Association must be sent to the Committee on Papers twenty days before the meeting, so that printed copies may be distributed among the members before the paper is read.

Lathrop, Mo., has developed some rather peculiar sensations during the past year, and it looks as though the supply was by no means diminished. Last fall indictments were found against a number of druggists for selling tincture of Jamaica ginger without prescription. The cases were called at Plattsburg on the 9th. J. F. Bacon, who has been a drug clerk for 15 years, answered to five indictments. He pleaded guilty to selling the tincture; the court held it was intoxicating and assessed a fine of $25 and costs in each case. Mr. Bacon has for years been a leading worker in the Methodist Church, and looks upon his prosecution as nothing but spite. Ed. M. Lennington, another drug clerk, stood a trial, said he had a right to sell the tincture of ginger, or any other tincture of recognized medical utility, but the court held that it was an intoxicating liquor and assessed a fine of $40. There is a widespread feeling of resentment among the druggists of the county, and they view with alarm the precedent and the restrictions it necessarily throws about them. They do not hesitate to pronounce it a very unrighteous decision, and it will probably be carried into a higher court.

Missouri has two colleges of pharmacy within its borders—the old St. Louis College, which has been in existence ever since the war, and the Kansas City College. They are both prospering and seem to be filling a mission. It now looks as if they will soon be assisted in their work by a third institution, to be located in St. Louis. Such a move has been threatened more than once, and now an effort is being made to execute it. If the new college opens it will probably create a condition of affairs similar to what exists in Chicago.

Kansas City.

James Taylor is with Palmer & Co., 12th and Broadway.

John R. Cook & Co.'s stock has been bought by Woodward, Faxon & Co. for $5,000.

Mr. Moody, of Nevada, spent the 11th in Kansas City. He was on his way home from the M. P. A.

J. Lemon temporarily succeeds Mr. Stronberg with G. Riddle, at 14th and Summit streets.

Mr. Nelson, of Odessa, Mo., stopped over the 11th on his way home from Excelsior Springs, where he had been attending the Missouri Pharmaceutical Association.

Mr. Impey, of Hopkins & Weller, St. Louis, is in town owing to serious illness in his family.

Chadwick, Seitz & Co. have sold their stock in the drug store opposite the Custom House to Palmer & Co., who have removed it to 12th and Broadway. They look cosy in their new home, and will doubtless secure their share of the trade.

John Oechsle, Deputy United States Marshal, returned home from Princeton, Mo., on the 9th, where he arrested A. L. McIntosh, charged with selling whiskey without a government license. McIntosh runs a "lady-or-the-tiger" drug store. He has been tried before, and this time was arrested on a capias.

Dr. C. A. Pinkard has purchased the large drug store at 321 Kansas avenue, and is making ready to accommodate a large trade. The doctor has transferred his entire stock from his old store on Osage avenue to his new location. He is by no means a stranger in Kansas City, Kan., having been a resident of the southern portion of the city since the latter part of 1888, during which time he has acquired a large circle of friends and established the nucleus of a fortune. Arriving in this city with scarcely anything, he has built up gradually the large business which he has so much enjoyed at 765 Osage avenue. His new purchase on Kansas avenue is being thoroughly remodelled throughout the interior, and when the work has been finished the store will present an appearance which will be excelled by none in the consolidated city.

MASSACHUSETTS.

The Kane Pharmacy, of Turner's Falls, has been closed by the sheriff for the past month.

Glidden & Co., pharmacists, of Brockton, have assigned with liabilities of $4,000.

H. A. Hamilton's drug store in Springfield was entered by burglars on the night of June 17th and a quantity of cigars taken. Perhaps they were acquainted with the popular brands that he dispenses.

Hathaway & Co. have opened a new pharmacy in Salem, in addition to the one they have conducted there for several years.

The New England Druggist is now under the management of Courtis & Arrington, both of whom are old hands at the newspaper business. Many new features are promised.

F. S. Stone, of West Fitchburg, has sold his pharmacy to the Thorn Medicine Company, who manufacture a number of specialties as well as run a drug store. Mr. Fenwick, long with H. S. Estabrook, has charge of the store. Mr. Stone will soon open a new store in Fitchburg.

Converse Ward has moved into a new location in Athol and put in a handsome new tile fountain.

Mr. C. D. Hunter, of Marlboro, is quite sick with rheumatism.

KANSAS.

The Kansas State Board of Pharmacy held its quarterly meeting at Emporia, June 9th, 10th, and 11th. The officers elected for the ensuing year are: President, F. E. Halliday, Topeka; secretary, H. W. Mehl, Leavenworth; treasurer, C. J. Butin, Fredonia. There were thirty-nine applicants for examination, of which the following were successful: Registered pharmacists: Peter Diedrichsen, Anthony; L. E. Garnett, Grenada; Walter E. Wilson, Miltonvale; Delos Graves, Garnett; C. F. Rutledge, Frederic; Nicholas Bristow, Horton; A. M. Smith, Howard; L. J. Schmidt, Wakeeney; Edward E. Lair, Topeka; W. I. Posser, Osage City; D. M. Reber, Beverie; F. E. Evans, Wichita; P. L. Fraser, Netawaka; W. R. Kennedy, Topeka; George F. Dawson, Abilene; D. E. Sanlau, Chapman. Assistant pharmacists: W. P. Pugh, Cottonwood Falls; J. J. Cavanaugh, Osage Mission; Charles Joyce, Independence; H. R. Funk, Belle Plaine; H. C. Oatman, Lawrence; Arthur L. Dyer, Wichita.

The next meeting of the Board will be held at the Madison House, Jefferson City, on July 6th. Examinations will begin at 9 A.M. The fee for examination is $3. Duplicate certificates will be issued on return of the original, or on sworn statement that the original has been destroyed or lost. The fee for a duplicate is $1.

ILLINOIS.

A meeting of the Chicago Retail Druggists' Association was held at the Sherman House, June 16th, which was very largely attended by the retail druggists of the city. The five leading wholesale druggists were also represented. Resolutions were adopted and committees appointed to take charge of the following matters:

1. To draw up a contract with Chicago jobbers to refrain from supplying cutters and retailing at wholesale prices. Committee: Wm. Bodemann, A. E. Ebert, T. N. Jamieson.

2. To present the question to the Illinois Pharmaceutical Association. Committee: Hugo W. C. Martin, C. Feldkamp, Andrew Sherer.

3. To bring about a union in the leading Western cities. Committee: Wm. Bodemann, J. W. Blood, E. K. McPherson.

4. To keep an eye on the cutting problem in Chicago. Committee: J. B. Knor, A. Oberman, Dr. R. Dycke, Andrew Sherer, E. K. McPherson, C. Feldkamp, Ira Marshall, Frederick Klein, C. B. Wilson, J. M. Weaver, Rud. Stangohr.

After adjournment a number of the members expressed themselves freely in favor of forming a close union with the C. R. D. A. of all such druggists as are willing and ready to stand by each other to flat-footedly refuse dealing with any jobber who is found to ignore the retail trade by selling to their worst enemies, these "cutters," and by selling to the patrons of the retailers at wholesale prices.

E. K. McPherson, Secretary.

CANADA.

The business outlook in Canada, to use the stilted phraseology of the mercantile agencies, is at present very dark indeed. In conversation with one of the prominent financiers of this province a few days ago, he said that he had noticed a depression in trade every seven years, and that this was the end of one of these periods. It may be so. At all events, never in the course of my limited experience (some ten or twelve years) in business have I noticed such torpidity. Collections are made with difficulty; goods are being sold at outrageously low prices and on extremely liberal terms. Men who hitherto have made it a point to buy for cash and save discounts, are taking time, and, in many instances, asking for renewals. In looking over the semi-annual reports of one of our most successful banking institutions, I notice that they have money amounting to hundreds of thousands on deposit, bearing a small rate of interest. This I have always considered an unfailing financial barometer. Those farms and other properties which some years ago were mortgaged for half their value, will to-day bring hardly more than one-half the amount of the money loaned. Again, one of the largest railroads in the Dominion is continually reducing the salaries of its employees, which certainly does not show an increase in the profits or amount of business done. Where to look for the cause of all this would puzzle the best of us. Assuredly the late troubles in the different parts of the world have some effect on the money market, and the recent death of the foremost man in the Dominion has lessened the confidence in the party in power. A possible—barely possible—reversion to free trade has made manufacturers curtail their outputs and buyers wary in their speculations. The continued excessively dry weather is affecting the crops and altogether must produce dull times; yet withal I cannot see why things should be so infernally—that is about the strongest printable adjective—quiet. If Russia, Germany, or some other European power spoiling for a fight, does not inaugurate a series of international military competitions, it is hard to say what will happen.

Speaking of competitions, I am reminded of the perennial activity of the combative spirit existing in the members of the Ontario College of Pharmacy. A Presidential election could not call forth as bitter a display of antagonism, and, though the vituperations may be couched in more refined language, the sting is not thereby removed. They do not call each other blanked liars or dashty-dashed rascals, preferring such phrases as "conscienceless perverters of veracity," and "men utterly lacking even the primary principles of integrity." Why don't those immediately interested form a ring in the College quadrangle and settle it by the M. of Q. rules—or Chinese, if they prefer it? It would give the majority of us more time for the contemplation of things more edifying than the sight of one man gratifying a thirst for notoriety at the expense of two of the best educated and most revered men in this particular branch of the economic industries. At the same time the atmosphere surrounding our trade journals would savor less of petty minds or petty instincts controlled, and grade the road to that professional Mecca aspired to by all pilgrims through this desert of ready-made pills, plasters, and patent medicines. One cannot read any of our Canadian trade organs without being reminded of that village council where the members thereof, in their discussions pro and con the establishment of a village hog-pound, imagined that the inhabitants of this entire planet and perhaps of a few others in the solar system awaited impatiently the weekly issue of the village "Star Transcript and County of —— Screecher," containing a verbatim report of the meetings, and graded their rhetoric accordingly.

The announcement of the result of the examinations held last month at the Ontario College of Pharmacy has gladdened the hearts of sixty young men. Twenty-five of them secured a sufficient number of marks to entitle them to a place on the honor roll. Mr. C. A. Yates, of Goderich, secured the college and Shuttleworth gold medals; Mr. G. J. Sadler, Ottawa, the college silver and D'Avignon gold medals; and Mr. R. Baxter, of Windsor, the Avison gold medal.

This argues favorably for the intelligence of the students or the efficiency of the professors, probably both. The course is longer and more comprehensive than it was some six or seven years ago, but the examinations are ever so much harder. The Ontario College of Pharmacy has no need to feel ashamed of the men it turns out, and it could stand comparison with any other American school—or Continental, for that matter.

Section 26 of the British Columbia Pharmacy Act, which passed its third reading on March 3d, entitles any person presenting a prescription to a druggist to be filled to have such prescription returned to him by such druggist.

It is not my place to pass judgment on the wisdom or otherwise of the legislators in inserting this clause, but one cannot help thinking that, while it defines the ownership of the prescription and may prevent legal interference in the matter, it may lead to undesirable results.

Little harm is done by a circulating family recipe, as long as it contains no potent remedy; but when a prescription containing morphia, chloral, or any of the narcotics, is allowed to become the common property of a public ignorant of its contents or the physiological effect of the medicines designated, and when a physician has no authority to control—in fact, is prevented from controlling—the use of remedies which, though admirable and indispensable in their places, may work incalculable harm by their abuse, one is liable to rate the common sense of the framers of the act very low. So prevalent has the habit of taking narcotics become, and so great has the evil grown, that it is surprising that men gifted with an average amount of thought-works should deliberately pour oil on the already devastating flames.

ENGLAND.

INFLUENZA still holds its sway in our midst, although with apparently diminished virulence. Chemists generally have been very busy during the last month, and have appreciated the welcome change. Only sixty-four death cases were directly attributed to the epidemic in London during the last week, but the death rate is still double the normal average. As usual our medical friends have been learnedly debating the origin and rise of the pest. Dr. Alfred Carpenter, in a communication which he says will be later on presented more fully to the British Medical Association, states his belief in the theory, to which Dr. Symes Thompson gave credence last year, that the origin is to be found in organisms produced by miasmatic influences in Northern China. Immense tracts of land were inundated for several months, and since then we have experienced strong northeasterly winds, which have brought the germs safely to our shores. Sir Morell Mackenzie, M.D., defines influenza as an acute specific fever, divisible into three varieties: catarrhal, abdominal, and nervous. Each of these is distinct and separate in its symptoms, but they may be intermingled or succeed one another. He considers the cause of the disease to be a specific poison of some kind which gains access to the body, and having an affinity for the nervous system, attacks it especially.

The British House of Commons has recently been "disinfected" on what has been rather pompously described as the most modern and approved antiseptic principles. This was done to allay the fears of some of the more timorous legislators; but scientists have been laughing in their sleeves at what was little more than a farce. It was stated that it was impossible to use ordinary sulphur fumigation, as the gilded cornices and appendages would have been irretrievably spoiled. So the method adopted was to sprinkle "thiocamf" over the floors, after the removal of cushions, etc., and to burn a few sulphur candles. It is well known that dry sulphur fumigation is useless, especially where the leakage of the sulphur dioxide must have been enormous. But this gaseous mixture was finally dispelled from the House by powerful fans on the Thames Embankment, by which most of the good done was obtained. Thiocamf is a patented disinfectant invented by Prof. J. Emerson Reynolds, M.D., F.R.S., who holds the chair of chemistry at Dublin University. It is a liquid formed by the action of sulphurous acid on camphor, which on exposure evolves the sulphur dioxide in steady fumes. Although in an ordinary way sulphurous-acid gas requires a pressure of over two atmospheres to liquefy it, contact alone with camphor effects the liquefaction speedily and without pressure. This liquid is stable and permanent when contained in closed vessels, but rapidly evolves the SO_2 on exposure.

It is quite true that the term antiseptic should be more carefully employed. There is no evidence whatever that half the patented disinfectants are antiseptics in the strict scientific sense. No one can, for instance, imagine that the fumigation adopted in the British Parliament would injuriously affect the spores of bacilli or micro-organisms. Dr. Klein, F.R.S., a few years ago pointed out that spores which have for twenty-four hours been subjected to the most powerful substances in common use as antiseptics, still retained their virulence when animals were inoculated with them.

Much has been made of Koch's discovery of the relative power of various antiseptic and germicidal agents, in which he found that the addition, for instance, of 1 part in 600,000 of perchloride of mercury, is capable of checking the germinating power of the spores of bacillus anthrax. But Klein maintains that perchloride is not a true antiseptic in that instance, for the spores may be steeped in a strong solution for any length of time, and yet when transferred to a suitable cultivation medium they grow and multiply.

It has been said that this is the "antiseptic age." In discs or pellets, in gauze and wool, we have all the known so-called antiseptics introduced, and yet one of our most brilliant surgeons repudiates their use, and states that if he could obtain sufficient bacteria he would make them into a poultice and apply it to his patients' wounds!

Preparations are already in progress for the annual meeting of the British Medical Association, which this year takes place at Bournemouth. Most of the wholesale druggists have applied for space for their exhibits. An interesting feature in these is the large number of new remedies that always appear. The handsomest exhibits are those where all bottles possess recess labels—that is to say, the space for label and its background of white enamel are moulded after the bottle is blown; it is then finished off by gold borders and black lettering, which gives it a splendid appearance. I may add that the Pharmaceutical Society have had their dispensing examination room completely fitted up with these bottles.

A recent improvement in hypodermic pellets has been introduced by Messrs. Allen & Hanbury. It consists of the addition of a small quantity of citric acid and bicarbonate of sodium to the pellet, so that when dropped into water effervescence takes place and the pellet speedily disintegrates and dissolves. It is pointed out that this obviates either of the necessities of crushing a refractory tablet or dissolving it by heat. The *Lancet* has reported in a very complimentary manner on the innovation.

Another distinct advance in the art of pharmacy has been patented by Messrs. Oppenheimer, Son & Co. It consists of two tiny discs of gelatin, cemented at their edges, and containing the medicine loose in the interior. These are called "palatinoids," an obvious derivation from the word palate. They are no larger than an ordinary five-grain pellet or tablet, and possess the immense advantage that they are more easily taken than pills. When one is dropped into water the two edges separate, oyster-like, and the enclosed powder drops out. Messrs. Oppenheimer inform me that they have several important combinations and improvements in connection with these elegant preparations. They will shortly be in a position to offer them in various sizes, and some have been made containing ten grains of extract of male fern. A large variety of formulas are kept in stock, most of which are of half, one, or two grain size palatinoids. They are sold in cylindrical bottles containing twenty-two palatinoids, at prices varying from $2 to $3 per dozen bottles.

London Market Report.

MINCING LANE, June 12th, 1891.

The present low price of opium has been largely taken advantage of here, and rates have receded slightly in consequence of favorable news from the East. Karabissar is selling at 2.2 to 2.3, Tokat and Malatia at lower rates. The total output of the crop is estimated at 8,000 cases, whilst at the same date last year it was only estimated at 5,000. Business at the Drug Auction yesterday was fairly good and a better tone prevailed. Cardamoms, ipecacuanha, sarsaparilla, and beeswax were dearer, whilst jalap and rhubarb alone suffered relapse. Quinine is declining. Citric acid has remained steady, but chemicals generally are quiet. Borax is firm and alkalies dull, although without alteration.

The following are current prices:

Arsenic........	per cwt.,	$3.0	Oils, aniseed....	per lb.,	$1.46
Bleaching p'wd'r	"	1.8	cajuput.... ...	"	0.70
Borax cryst...	"	6.8	lemon........ .	"	0.84
" powder...	"	7.0	Potash, chlorate.	"	0.11
Beeswax, Jam.,	per lb.,	0.32	Quinine, Germ....	per oz.,	0.22
Cream of tartar,	"	.20	" Howard's	"	0.32
Camphor.......	"	.44	Rhubarb...	per lb.,	0.30
Cubebs.	"	.40	Sarsaparilla.....	"	0.32
Ergot	"	.36	Soda, caustic...	per cwt.,	2.52
Ipecacuanha ...	"	1.96	bicarbonate..	"	1.66
Jalap	"	.24	Shellac........	"	17.2

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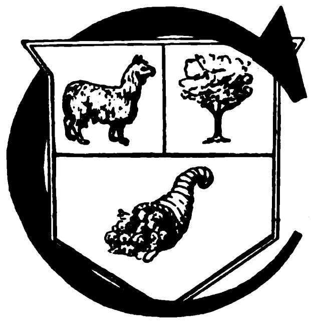
COCA CULTURE.

Gathering Coca Leaves.



Coat-of-arms of Peru.

COCA has been known outside of South America since about 1550, but until 1884, when Koller, then a medical student in Vienna, announced the result of experiments upon the anæsthetic effect of the muriate of cocaine, little use was made of its properties as a remedy. In 1860 Niemann had spoken of its benumbing influence upon the mucous membrane of the tongue; but no practical result followed, and the only trials made of the drug were with reference to its capacity for enabling the user to withstand fatigue or the exertion of mountain-climbing. The accounts given by travellers in South America of the remarkable endurance of fatigue and fasting by those who chew the leaf did not receive general credence; and not long before Koller's discovery became public, Dr. Christison and others made a series of trials of mountain-climbing with a view to verifying these reports, which resulted in their favor.

The study of coca made by Dr. Henry H. Rusby, of New York, during a journey in South America, which was narrated in the *Therapeutic Gazette* in 1886, indicates that the effects of the chewing of the fresh leaf and of the administration of salts of cocaine are not altogether similar, and that the leaf which is most esteemed for its richness in cocaine is not the one most sought for by the chewer.

Passing by the description of the plant and any further reference to its uses, we will refer here to some facts of interest respecting its production. Unlike so many other vegetable products of South America, coca is, and, so far as known, has always been, the result of culture. We have accounts of the existence of wild coca shrubs in limited regions of the Andes, but they furnish no leaves to commerce. Peru and Bolivia furnish the greater supply, but the Argentine Republic, Ecuador, and Colombia also produce it abundantly. In Peru the valleys of the Carabaya region are largely devoted to it, especially the valley of Ituta. Its importance as a product has led to the plant being represented, since 1825, in the Peruvian coat-of-arms (as shown in the initial letter). It is grown from seed, and rarely attains to great height, its aspect being that of a bush rather than that of a tree. It commences to yield merchantable leaves two years after the seeds are planted, and bears two or three crops annually, or, when irrigated during the dry season, four or five. The alkaloidal strength (according to Rusby) is at a maximum at about the tenth year, and declines slowly after about the twentieth, owing probably to exhaustion of the soil for want of artificial fertilizing. Its cultivation in South America is generally restricted to an altitude of 2,000 to 6,000 feet, the natives preferring that produced at the higher elevations. It demands an abundance of moisture, and, whether rightly or not, the native cultivators consider it essential to shade it from the direct sunlight, at least during its early growth. The soil is pulverized to a depth of two or three feet, and the stones which are extracted are used for the construction of retaining walls for the terraces upon which the shrubs are grown on hillsides. Upon level surfaces the plants are placed at the bottom of furrows, the soil from which is arranged in mounds between the rows, thus affording the shade considered desirable and retarding evaporation.

The gathering of the leaves is done chiefly by women and children, and the leaves are plucked one by one and with care to avoid breaking the small twigs. They are placed in a cloth or apron attached to the waist and gathered into a pouch. As soon as possible they are spread upon large woollen sheets or a stone pavement and exposed to the sun to dry. With occasional turning they are dried, under favorable conditions, in about three hours, and are then packed in bags or bales. During the drying process they are guarded from moisture, and on the appearance of indications of rain they are quickly swept under sheds with which the drying floor is surrounded.

With regard to the best mode of packing coca for market, Dr. Rusby says that he has made a number of experiments, without arriving at a method which will insure preservation, and that "it is fair to say that nothing definite is known. Such coca as has reached Europe or the United States in good condition has done so purely by accident, for perhaps the very next lot, dried, packed, and shipped as nearly as possible in the same manner, has arrived entirely ruined." When put into bags made of the sheath of the banana leaf, the package (called a *cesto*) contains about twenty-four pounds. A *tambor* is a bale about double the size of a *cesto*. Occasionally two tambors are closely soldered in tin or zinc enclosed in wood, which protects them from dampness which rapidly destroys their value. Although shipped from many ports along the western coast, Salaverry, in Peru (the port of entry to Truxillo), and Arica, in Bolivia, are the chief.

Coca and Cocaine.

At the recent fiftieth anniversary of the Pharmaceutical Society of Great Britain, Dr. Otto Hesse (who was, most fittingly, made the recipient of the Hanbury medal) communicated an important paper entitled "A Study of Coca Leaves and their Alkaloids," from which we take the portions relating to the leaves themselves and to the alkaloid cocaine.

I. COCA LEAVES.

The increased interest aroused in hydrochloride of cocaine some years since caused the manufacture of this compound to be undertaken in many different quarters, but the resulting preparations not infrequently differed considerably in composition and formula from the body described and investigated by Lossen.* This unsatisfactory state of things induced me at the time, as I was occupied with the preparation of this and other compounds of cocaine, to undertake a more detailed investigation of the whole subject.

Although the circumstances referred to have assumed a more favorable aspect in recent years, only a very pure hydrochloride of cocaine finding acceptance in commerce at the present time, yet I think that some of the recorded observations should not be withheld from publication, since in many respects they rectify and supplement existing information upon the subject, and also afford an opportunity for an exact comparison of cocaine with other basic constituents of coca.

Before, however, entering into details, I may be allowed to communicate a few facts concerning coca leaves that will impart a better general acquaintance with the subject.

It is worthy of note that Niemann * selected the broad-leaved coca for investigation. This material was derived from the *Erythroxylon Coca* Lamarck, a shrubby plant indigenous to the country east of the Andes, from Southern Colombia to the Argentine Republic, and much cultivated on the yungas of Peru and Bolivia. Indeed, it is from the latter countries that the supplies of coca for the market have been principally drawn.

In Peru and Bolivia the coca leaves are picked thrice yearly, viz., in spring, summer, and autumn, and on the last gathering the coca plant is completely stripped of its leaves. The coca leaves are dried as quickly as possible in the sun, and then either packed in banana leaves as "tambor" or "drum" (bundles weighing about 18 kilos), which are further fastened together to form bales about 70 kilos in weight, or at once packed into bales from 45 to 70 kilos in weight. These large bales are transported by mules and other beasts of burden hundreds of English miles through the Andes to the different ports of Bolivia and Peru, from whence they are exported to Europe and North America. The coca harvested in Bolivia is exported principally from Arica and Mollendo, the supply from Southern Peru is exported via Lima, and that from Northern Peru via Salvaverry, the port of Trujillo, or Truxillo. The marks of the coca, however, correspond less to the places of export than to the districts in which the coca has been cultivated, or to the places in which the respective commercial houses have their headquarters, so that in the market not only "Lima coca," but also "Huanuko coca," "Cusco coca," "Trujillo coca," etc., are distinctive terms. With the exception of "Trujillo coca," all these varieties are identical in appearance with the coca investigated by Niemann. The Trujillo coca, which is obtained from the province Trujillo, and also apparently from more northerly districts in Ecuador and Colombia, differs from the above in that the leaves are brightly colored, narrower, less leathery, extremely thin, and therefore very fragile. On this account the Trujillo, or Truxillo,† coca of commerce consists almost entirely of fragments of leaves. The origin of this coca is attributed to a variety of the above-named plant, viz., *Erythroxylon Coca*, var. *Novagranatense* Dyer.

Besides these two varieties of coca a third sort came temporarily into the market, which occupied an intermediate position between both the previous kinds in size of leaf, but the leaves were very leathery and well preserved. This sort, which was principally sent to Paris, I have erroneously attributed to Trujillo in a previous communication,‡ but this assumption does not accord with subsequent information.

In view of the therapeutical interest attached to the drug, it has been deemed advisable to cultivate the coca plant in other places as well as South America. Such attempts have been made in the East Indies, in Ceylon, Java, etc. According to Warden § the coca plants flourish in the cinchona plantations of Madras and in the tea plantations of Bengal, and yield a leaf containing from 0.358 to 1.671 per cent alkaloid. In Ceylon, where the plants have been distributed from the Peradeniya Gardens, a leaf obtains which is certainly rich in alkaloid, but the base frequently consists principally of cinnamylecgonine methyl ester. The culture in Java is still less satisfactory, although here also the leaf often contains considerable quantities of alkaloid. In all these latter kinds of coca leaves the alkaloids accompanying cocaine preponderate, and it is moreover said that they are partly derived from a new variety of coca. Burck‖

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* Annalen, 133, 351.

* Annalen, 121, 372.

† Since the name Trujillo is more frequently met with than Truxillo, I prefer to employ the former spelling.

‡ Berichte der deutsch. chem. Ges., xxii., 666.

§ Pharm. Journ., [3], xviii., 1010, 1027.

‖ Pharm. Journ., [3], xxi., 760.

designates the coca plant cultivated in British India as *Erythroxylon Bolivianum*, and the Java plant as *Erythroxylon Coca*, var. *Spruceanum*. The latter is stated to occupy a position between *E. Coca* and *E. Coca*, var. *Novagranatense*, and is most probably the plant that yielded the coca imported into Paris several years ago.

In the cocas from South America the alkaloidal percentage is also by no means constant, but varies both in quantity and quality. These variations appear to be attributable not only to the variety of plant, but also to the influence of local circumstances, as culture experiments in the East Indies have shown. It is also to be taken into account that, according to Rusby,[*] the alkaloidal percentage varies with the age of the leaves, and that less careful drying or a lengthy transport of the coca, especially if it has been packed while in a moist condition, considerably decreases the yield. From both the first-named South American cocas, when they have received good treatment, I have obtained 0.7 to 0.9 per cent alkaloid, of which the greater part consists of cocaine in the broad-leaved variety, and to the extent of about one-half in the narrow-leaved or Trujillo coca. The third kind, or the coca obtained from Paris, however, yielded 1.2 per cent alkaloid, of which about one quarter consisted of cocaine, whilst one specimen, an apparently excellent coca from Venezuela, contained only 0.02 per cent alkaloid. Whether a trace of cocaine occurred in the latter, or whether it was entirely absent therefrom, could not be decided from the small quantity of material.

Under the name "crude cocaine" is understood the total quantity of bases as they are obtained by one or other method from the various kinds of coca. Owing to the differences which the "crude cocaine" must necessarily show, it is clear that it is not possible to obtain a pure preparation from this material, if it is simply saturated with hydrochloric acid and then evaporated to crystallization, as Squibb[†] earlier recommended. Meanwhile, however, the method for the preparation of cocaine hydrochloride has been so perfected—I need only refer to Williams'[‡] method—that the differences in the crude material are no longer a matter of serious consideration.

II. COCAINE.

I have effected the separation of the cocaine from the crude substance direct with hydrochloric acid in such a way that the accompanying alkaloids have been retained unaltered. The alkaloid was obtained from the hydrochloride, which had been once recrystallized from chloroform with the addition of ether, by means of ammonia or sodic carbonate and ether, the ethereal solution depositing the base in the well-known form upon evaporation. The body melts, like the synthetical product, at 97° C. in Roth's apparatus. Niemann, as well as Liebermann and Giesel, record the melting point as 98° C.; Skraup as 96° to 97° C.; Merck as 97° to 98° C. Cocaine dissolves readily in hot petroleum-ether, and crystallizes out of the cooled solution in needles. It also dissolves easily in hot alcohol, wood spirit, acetone, and chloroform, and crystallizes from these solvents upon cooling, if the solution be sufficiently concentrated. In hot water it dissolves more readily than in cold, but at the same time a fairly rapid decomposition occurs. Even if the alkaloid be heated for some time with water to 80° C., it gradually disappears and is not again precipitated upon cooling. The solution, which is of distinctly acid reaction, now contains benzoylecgonine and ecgonine, as well as cocaine benzoate, so that a decomposition of the base is effected in the following sense:

$$C_{17}H_{21}NO_4 + H_2O = C_{16}H_{19}NO_4 + CH_4O$$
$$C_{17}H_{21}NO_4 + 2H_2O = C_9H_{15}NO_3 + C_6H_5.COOH + CH_4O.$$

The benzoic acid liberated in this reaction—not an inconsiderable quantity—combines with the cocaine still undecomposed, and effects not only its solution, but also hinders its further decomposition. That benzoylecgonine is produced by the action of water upon cocaine Paul and Einhorn have already demonstrated, without, however, particularizing the course of the reaction.

Even when cocaine is recrystallized out of hot dilute alcohol, partial decomposition into methyl alcohol and benzoylecgonine is scarcely to be avoided. If the cocaine obtained in this manner be dissolved in ether, more or less benzoylecgonine may be removed from the ethereal solution by treatment with water.

The hydrochloride of cocaine itself contains 1 molecule of alkaloid to 1 molecule of hydrochloric acid. It crystallizes from ice-cold water in colorless prisms containing 9.5 per cent of water of crystallization, and therefore corresponding to the formula $C_{17}H_{21}NO_4,HCl + 2H_2O$; but an anhydrous form occurs as a crystalline powder, when, for example, absolute ether, in which it is insoluble, is added to its solution in chloroform. According to Antrick, it melts at 181° to 185° C.; according to Einhorn and Marquardt, at 181.5° C.; whilst my own observations in Roth's apparatus correspond to 186° C. Minute impurities, almost defying detection, lower the melting point of the hydrochloride to about 180° C.

A very dilute solution of the hydrochloride gives almost immediately upon addition of ammonia a crystalline precipitate of cocaine. When the solution is more concentrated, however, a milky opaqueness first occurs upon the addition of ammonia, but the opacity soon disappears and crystals of cocaine are deposited. The resulting precipitate, as also that obtained with carbonate of soda, is anhydrous cocaine, an observation also recorded by Liebermann and Giesel, and not a hydrate of the alkaloid as suggested by Squibb. Indeed, cocaine forms no compound with water, a fact inconsistent with the hypothesis of Liebermann and Giesel, who attempted to explain the peculiar behavior of cocaine to ammonia or soda by assuming that cocaine is at first precipitated by these reagents from its salts in an amorphous condition, and that the amorphous cocaine becomes more or less quickly crystalline, according to the concentration of the solution; passing through an intermediate soluble form. This property of cocaine is met with in many other alkaloids.

The aqueous solution of cocaine hydrochloride, which reacts neutrally, gradually acquires a slightly acid character when boiled for a considerable time under an upright condenser, or heated in a sealed tube to 120° C., though the amount of decomposition is very slight, even if the heating be long-continued. But if hydrochloric acid be added to the solution, formation of benzoic acid occurs rapidly, and the decomposition continues until within a short time the whole of the cocaine has been decomposed. The same reaction is observed if a solution of cocaine in concentrated hydrochloric acid be allowed to stand at ordinary temperatures; but, on the contrary, no decomposition of cocaine occurs if it be boiled at the ordinary atmospheric pressure with excess of benzoic acid and water, or with dilute or glacial acetic acid. It may be, therefore, concluded that the action of acids upon cocaine depends upon especial conditions.

The slightly warmed aqueous solution of the hydrochloride gives with platinum chloride a yellowish-white, flocculent precipitate of the double platinum salt, that soon becomes crystalline. If platinum chloride be added to a hot alcoholic solution of the hydrochloride, the double platinum salt separates in fine orange-colored leaflets that are completely anhydrous and melt at 205° C.

The gold salt is precipitated by gold chloride from hot alcoholic solutions of the hydrochloride in beautiful gold-shimmering leaflets that are anhydrous and melt at 196° C., and, contrary to the assertion of Lossen, are of very stable nature.

Upon mixing the aqueous solution of cocaine hydrochloride with a dilute solution of permanganate of potash, a purple-violet precipitate of permanganate of cocaine obtains, whilst the supernatant liquid also acquires a purple-violet tint. In a short time, however, both liquid and precipitate lose their color and dioxide of manganese is deposited. On the other hand, a solution of cocaine hydrochloride acidified with hydrochloric acid gives with bichromate of potassium a pretty precipitate, consisting of leaflets. Both reactions—the first discovered by Giesel, the second by Mezger—are of importance, since the first serves to detect an admixture of cinnamyl-ecgonine methyl ester and similar compounds, the second indicates the presence of cocamine and such bodies.

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[*] Pharm. Journ., [3], xvi., 706.

[†] Pharm. Journ., [3], xv., 776.

[‡] Pharm. Journ., [8], xviii., 262.

OUR FIGURES.

FIGURES, like everything else, have passed through an evolutionary process. Those little Arabic signs, which have now such a significance for all of us, had little of their present elegance when first introduced in Europe in mathematical works in the twelfth century. The zero was at first wanting, even in the Orient, and it was not till 813 to 833, during the time of the Caliph Al-Mamum, that it "figured" in an arithmetical translation. How convenient these figures are in comparison with the heavy and cumbersome Roman system that is now confined to monuments and dial plates! But these latter held out valiantly, and had, it would seem, warm and very forcible defenders, as an instance of which we are informed that in 1299 the Florentine money-changers were forbidden to reckon in figures, while the statutes of the University of Padua prescribed that the price of books should be given on the title-page, but *non per cifras, sed per literas claras*. It must be said in extenuation of this rule, however, that the figures of that period reflect little credit on the type-founder, as may be seen from the accompanying cuts.

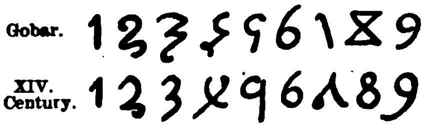


FIG. 1.

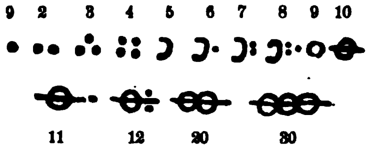


FIG. 2.

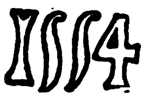


FIG. 3.
From Salisbury Cathedral (1554).

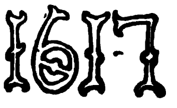


FIG. 4.
From a house in Aix-la-Chapelle (1617).

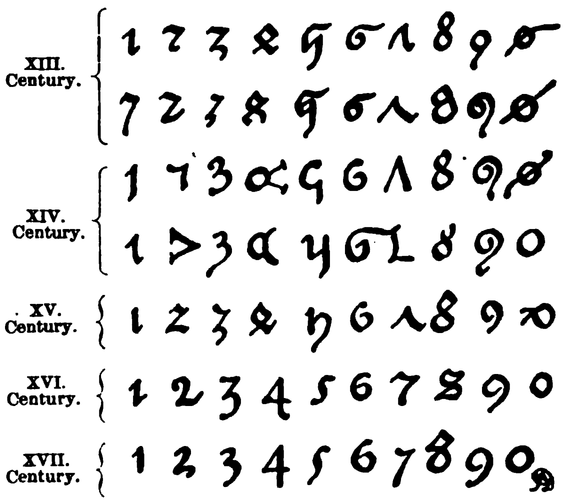

XIII. Century.
XIV. Century.
XV. Century.
XVI. Century.
XVII. Century.

FIG. 5.

Evolution of Arabic Numerals.

The Arabic numerals began to come into more general use in the fifteenth century. Very little improvement can be discerned from the original Arabic (Gobâr) figures and those in use in the fourteenth century (Fig. 1).

Roman characters were often intermingled with the Arabic. An inscription on a tomb in Salzburg has 1463 written as follows: 1.4.LXIII., while 1456 on an ecclesiastical seal is rendered M456.

A very curious specimen of a numeral system is shown in Fig. 2, from a manuscript of the fourteenth century.

Architectural monuments of the Middle Ages also furnish some singular specimens, as in Figs. 3 and 4.

The specimens from various centuries (Fig. 5) show the changes undergone: 1, 3, 6, 8, 9, and 0 have changed but little, while 4 and 5 have been really "transmogrified." Many Frenchmen to-day make the 5 exactly as in the seventeenth century; 2 and 7 are also very different now from what they were.—*American Bookmaker.*

◆

Death after Salol.—A case was some time ago reported by Aufrecht and Behm in which death followed its use in acute endocarditis. More recently Dr. Chlapowski has published in a Bohemian medical journal an instance in which a similar fatal result followed a 15-grain dose ordered to a patient who was suffering from severe gastric symptoms, and who was being examined by Ewald's method.—*Lancet.*

The Best and Safest Form of Alcohol Lamps.

PROF. M. T. LECCO draws attention to the fact that glass alcohol lamps having a broad, compressed form, or a flat surface, from which the neck projects, are unsafe, as the large surface exposed to the heat of the flame is liable to crack from unequal expansion. The safest form is the conical. We might perhaps more correctly describe the latter as turnip-shaped, the broadest part being, of course, at the bottom, while the neck is formed by the tapering end.—After *Chem. Zeit.*

[We have had considerable experience with alcohol lamps, and have come to the conclusion that the globular ones are, so far, the best. The market does not yet afford the turnip-shaped ones described above. When it does we shall be inclined to try them. There is a form of brass alcohol lamp in the market which has the very fault pointed out by Prof. Lecco. Its flat surface often becomes very hot, and by careless management, when the amount of alcohol is low, and the wick or neck insecure, the gases contained in the lamp are ignited and an explosion results. This has happened repeatedly to our knowledge. But in most of these cases wood alcohol was used as fuel, and this is still more unsafe than ordinary alcohol.—ED. AMER. DRUGG.]

Methyl-Mercaptan,

C_2H_4S, is the substance to which the urine voided after eating asparagus owes its peculiar odor, as was recently ascertained by Nencki, after a futile attempt to determine the cause of this peculiar odor had been made before by Hilger. Nencki distilled the asparagus-urine, previously acidulated with oxalic acid, over a sand bath, whereby the escaping gases were passed into a wash bottle containing a 3-per-cent solution of mercury cyanide, which retained the methyl-mercaptan. According to Loew, the mother substance of methyl-mercaptan in the shoots of asparagus is, in all probability, an organic sulphur combination of simple structure accompanying the asparagin.—*Merck's Bulletin*, June, 1891.

Apomorphine Hydrochlorate.

MERCK & CO. (in *Bulletin*, June, 1891) draw attention to the fact that the solubility of hydrochlorate of apomorphine is given incorrectly in the U. S. Pharm., where it is stated that the salt is soluble in 6.8 parts of water. This has, however, been pointed out as long ago as in 1885, when it was shown that the solubility is more nearly 1 in 50 (see "Digest of Criticisms," page 28). Merck states that 1 in 40 (as given by the new German Pharmacopœia) is the correct proportion.

HEMPEL'S IMPROVED EXSICCATOR.

A SHORT time ago Walter Hempel showed that by reversing the arrangement in the exsiccators at present in use—that is, by placing the substance to be dried *below* the moisture-absorbing medium—a much more rapid and perfect effect is produced. He now suggests a form of apparatus which meets all the requirements.

The apparatus consists of a cylindrical glass, A, and the cover, B. The latter has the form of the well-known glass fly traps. The sulphuric acid is contained in the annular groove *a*. The neck of the vessel B is closed with a hollow stopper (provided with a stopcock) which may be connected with the air pump. The form of the vessel B permits the latter to be laid upon its side when it is temporarily taken off the cylinder. This prevents the ground bottom from becoming gritty with dirt, etc., which would interfere with its air-tight fitting.

In making or choosing the upper vessel B, the opening at *a* should be as large as possible, and its upper flange, at *y*, should be slightly curved toward the outer wall.—*Chem. Centralbl.*, 1891, 1, 908.

Hydrogen Peroxide.

DR. C. KRAUCH, in his revised work on Reagents, gives the following description, tests, and notes on hydrogen peroxide.

"*Hydrogen Peroxide.*"—A clear, limpid, very faintly acid liquid, containing about 3 per cent of hydrogen peroxide $[H_2O_2]$, and strongly effervescing when mixed with solution of permanganate of potassium, the latter at the same time losing its color.

Tests for Impurities.—Sulphuric acid: Dilute 10 C.c. of hydrogen peroxide with 50 C.c. of water, add to the liquid a little hydrochloric acid, heat to boiling, and add a few cubic centimeters of solution of chloride of barium. Even after standing for several hours, no reaction for sulphuric acid should show itself. [See, however, below, since a product of this degree of purity is only required in analysis.]

Alumina: 10 C.c. of solution of hydrogen peroxide, when diluted with water and treated with ammonia and ammonium carbonate, yield no precipitate.

Phosphoric Acid: On mixing 5 C.c. of hydrogen peroxide solution, previously diluted with water, with a few cubic centimeters of magnesia mixture [solution of 110 Gm. of magnesium chloride and 140 Gm. of ammonium chloride in 1,300 C.c. of water, addition of water of ammonia, specific gravity 0.960, to 2 liters, and filtering after two days], and with ammonia in excess, nothing material should separate [that is, the solution should not become more than slightly turbid].

Magnesia: On adding to 5 C.c. of hydrogen peroxide solution some ammonia and a few cubic centimeters of sodium phosphate solution, no precipitate should appear.

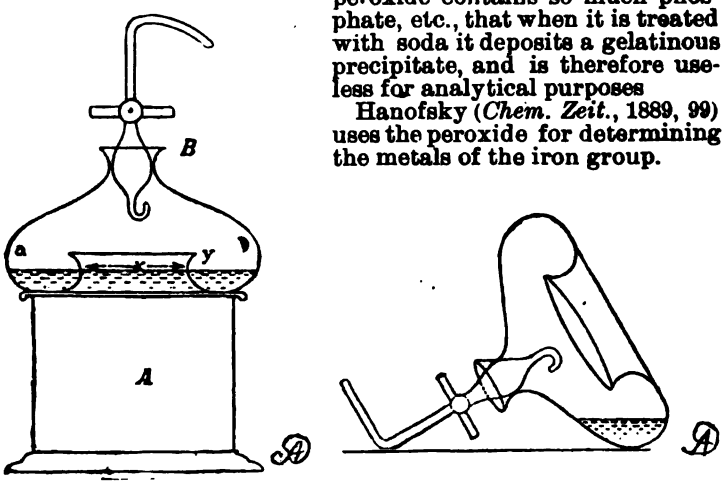
Quantitative Determination.—The following method is very convenient: Titrate with a solution of permanganate which has been standardized by oxalic acid. Or, if no standardized permanganate is at hand, proceed as follows: Make a solution of 3.2 Gm. of the purest obtainable permanganate (Merck's "Kalium hypermanganicum purissimum") in 1 liter. Dilute 5 C.c. of hydrogen peroxide solution with 50 C.c. of water, add 10 C.c. of diluted sulphuric acid (1:4), and titrate with the permanganate solution until a permanent red tint remains. Each 1 part of permanganate corresponds to 0.538 parts of hydrogen peroxide.

Hydrogen peroxide is frequently [in the U. S. always] furnished by factories by so-called volume instead of by weight per cent. A 10-volume solution, for instance, is one which contains for every volume of the solution 10 volumes of available oxygen. A 10-per-cent (by volume) peroxide of hydrogen contains 3.0382 parts by weight of H_2O_2.

Uses.—The use of hydrogen peroxide as a useful oxidizing agent in analysis was first proposed by Alex. Classen and O. Bauer (*Berichte*, 16, 1061), particularly for oxidizing and determining sulphur in carbon disulphide, in metallic sulphides, and in sulphites and hyposulphites. For this purpose the solution of the peroxide must be free from sulphuric acid and otherwise respond to the above-named tests. The same chemists use the agent also for determining hydrochloric and hydriodic alongside of hydrosulphuric acid, for which purpose it is necessary that the peroxide should be absolutely free from hydrochloric acid. But in commerce it is customary to add to the peroxide solution, for the purpose of preserving it, either a little sulphuric or a little hydrochloric acid, which must be taken account of when using the substance as a reagent. For sulphur determinations the peroxide must be entirely free from sulphur, but may contain a little hydrochloric acid; and for chlorine determinations it must be free from the last-named acid, but may contain a little sulphuric.

Wilfarth uses the peroxide also for determining nitric acid. He also points out that much of the commercial peroxide contains so much phosphate, etc., that when it is treated with soda it deposits a gelatinous precipitate, and is therefore useless for analytical purposes

Hanofsky (*Chem. Zeit.*, 1889, 99) uses the peroxide for determining the metals of the iron group.



Hempel's Exsiccator.

In the *Pharm. Zeit.*, 1888, 20, it is pointed out that all commercial peroxide up to that time contained alumina and phosphoric acid. Scholvien has also found nitric acid in it. According to Mann, magnesium chloride is almost always a constituent of the peroxide used for technical purposes. [Of course, all these statements refer to the European market.] The brands intended for use in the arts, and also the medicinal kind, are often unsuited for analytical purposes. When it is wanted for the latter the quality sold with the qualification "purissimum, pro analysi" should be employed.

For the preparation of oxygen gas from the peroxide solution by means of chloride of lime, the quality used in the arts is sufficiently pure.

The solution of the peroxide must be examined as to its strength from time to time, since it decomposes, particularly when it is not acid in reaction. Explosions have sometimes been caused by the decomposition of the peroxide. If the pure, unacidified peroxide is kept in glass vessels, the alkaline nature of the glass is, in itself, sufficient to hasten the decomposition of the compound. For this reason it is customary to acidify it.

THE following is taken from an essay by Dr. B. W. Richardson, read before the Medical Society of London on March 23d:

Peroxide of hydrogen is still made, as Thénard first made it, by the action of an aqueous acid solution on peroxide of barium, the number of volumes in each specimen turning on the number of precipitations.

I originally proposed a 10-volume solution for medical purposes, and that has been well adhered to; but for special purposes a solution of 20 and even 30 volumes may be employed. In order to keep the oxygen in the solution it is necessary to have it slightly acidified, either by dilute nitric, hydrochloric, or phosphoric acid; and, for my part, I prefer the dilute phosphoric acid. In this form the solution can be administered internally in doses varying from a fluidrachm to a fluidounce; but 2 or 4 drachms diluted in 10 fluidounces of water may be considered an average dose. The taste is peculiar, being identical with that of ozone when inhaled by the mouth, and not at all dissimilar to the taste of chlorine in a weak solution. For injection purposes the solution should be rendered neutral by the cautious addition to it of caustic soda or potassa. The soda I think is the best, but it should not be neutralized until the time it is wanted. In "10 volumes" it may be injected either into the cavities or into the cellular tissue without being further diluted. [We know positively that the internal use of *undiluted* hydrogen peroxide, and its application to the mucous membrane of the rectum, bladder, and vagina, has produced very serious results. Indeed, several prominent physicians who had commenced to use it in considerable dilution for such purposes have abandoned its use. Externally it is comparatively harmless.—Ed. Am. Drugg.] The solution of the peroxide is incompatible with many substances, but it is compatible with the following: the mineral acids, tannin, alcohol, glycerin, alcoholic solutions of the alkaloids, and alcohol combined either with ether, amyl hydrate [?], amyl nitrite, or isobutyl [?].

Administration by Inhalation.—The oxygen from the peroxide can also be administered by inhalation by means of a simple apparatus which I have constructed for general use, and in working which I have taken advantage of another oxygenated body that liberates the oxygen and at the same time yields up a portion of its own oxygen.

Into a glass vessel having two necks, like the ordinary Woulff's bottle, a few ounces of the peroxide solution are placed. A long-stemmed funnel—the tube having a stopcock—runs through the stopper of the bottle to the bottom of the contained solution. From the second neck of the bottle there springs another tube for inhalation, at the free end of which is a double-valved mouthpiece, like the oldest and best of the chloroform inhalers. The apparatus is now ready for use. When it is wanted the funnel is charged with a solution of permanganate of potassium in the proportion of 10 grains of the permanganate to a fluidounce of water. The tap is then turned, the permanganate solution flows into the peroxide solution, and immediately oxygen derived from both bodies is briskly evolved. This, if necessary, can be caught in a flexible balloon or bag, from which it can be inhaled in measured doses, but this is not a requisite. Should the practitioner desire to combine the oxygen with ether, or with any other volatile body soluble in ether but not in water, he can allow the ether or ethereal solution to float on top of the peroxide solution. Then, as the oxygen escapes, the ether, or the ether with its other volatile comrade, passes over in combination with the oxygen. A patient can help himself to a dose at any time, as may be directed, by merely adding a measured quantity of the permanganate solution.

Nitrite of amyl can be inhaled in this manner with ether, and, in short, there is here a means of administering most of the active volatile medicaments by inhalation, and in a form most ready for combination with the blood, as it passes in its course over the pulmonic circuit. Under the form of ozonic ether the administration can be carried out either as a medicine to be taken in water or as spirit solution by the mouth, in doses of half a fluidrachm to 2 fluidrachms, or as fine spray from the Siegle steam inhaler. For a styptic and deodorant spray for the throat the following form is useful: alcohol, pure (sp. gr. 0.830), half a fluidounce; tannin, pure, 20 grains. Dissolve the tannin in the alcohol with an ounce of distilled water, and then add solution of peroxide of hydrogen (10-volume strength) to make 6 fluidounces. To make a solution for spray: Of this solution 1 or 2 fluidrachms can be used with a steam spray inhaler (Siegle's), a mode especially applicable in cases of throat affection.

When the peroxide spray is brought into use for the throat, it is good practice, in some instances, to make the spray the means of administration, in small doses, of medicinal agents which may act internally. Quinine may be administered in this manner, and also soluble preparations of opium, and many other substances that are soluble in alcohol and are at the same time compatible with the oxygen solution.

Spray for the Sick-Room.—Reference was made [by the author] in the first part of this paper to ozonic or sea spray for the sick-room—a solution diffused in the air as spray from a spray producer. The solution is composed of the solution of peroxide of hydrogen (10-volume strength), 10 ounces; common salt, 2 drachms. If a pleasant and pine-tree odor be desired, a few drops of ethereal tincture of kowrie gum can be added and the effect can easily be produced. In sick-rooms and in the wards of hospitals such sprays could be arranged to work automatically, so as to deliver and diffuse the solution at regular intervals. For this purpose Messrs. Krohne & Sesemann have constructed for me an apparatus which will distribute spray for several hours at a time.

Other Modes of Application.—The peroxide solution can be prescribed as a gargle, antiseptic, and astringent. A good form for this purpose is: To make an 8-ounce gargle:

Tannin, pure	10 grains.
Glycerin, pure	1 oz.
Distilled Water	4 fl. oz.
Hydrochloric Acid, diluted	10 minims.
Peroxide of Hydrogen, solution, sufficient for	8 fl. oz.

An evaporating lotion can be made with the peroxide in the following form. To make a 12-ounce lotion:

Alcohol, pure (sp. gr. 0.830)	2 fl. oz.
Anhydrous Ether	1 fl. oz.
Distilled Water	4 fl. oz.
Peroxide of Hydrogen, solution, of neutral reaction and 10-volume strength, to	12 fl. oz.

Another simple yet useful preparation of the peroxide is as an ointment for inunction over the surface of the skin after scarlet fever and other affections where there is free shedding of dead cuticle. The ointment is made by rubbing up ozonic ether with spermaceti ointment so as to form a thin paste, which may, if desired, be rendered thick by the addition of a little more spermaceti, or thin by addition of olive oil.

New Perfumes.

Dr. Hermann Kraetzer, of Leipzig, contributes the following formulas (some of the quantities being given here in the U. S. equivalents) to "Neueste Erfindungen and Erfahrungen":

1. *Bouquet d'Amour:*

Oil of Lavender, finest	1,200	grains.
" " Cloves, twice rectified	600	"
" " Rose	15	"
" " Bergamot	600	"
Tinct. Vanilla	6	fl. oz.
" Ambergris	6	"
Alcohol (deodorized)	12½	pints.

2. *Chypre* (for the handkerchief):

Oil of Rosemary, finest	1,080	grains.
" " Orange, bigarade	2,160	"
" " Petitgrain	1,260	"
" " Bergamot	2,340	"
" " Limetta	2,250	"
" " Neroli, petale	450	"
Alcohol (deodorized)	49½	pints.
Distilled Water	24½	"

Digest the oils with the alcohol for four or five days, then add the distilled water.

[We believe that the quantity of water is too large. There is no use in throwing out of solution a considerable quantity of costly essential oils. Only such a quantity of water should be added as will cause a permanent cloudiness, after which the solution may be filtered, with the aid of talcum, or phosphate of calcium, or some similar inert powder.—Ed. Am. Drugg.]

3. *Ylang-ylang Extract:*

Oil of Ylang-ylang	370	grains.
" " Neroli, petale	48	drops.
" " Rose	115	"
" " Lemon	48	"
Musk	16	"
Alcohol [deodorized]	30	pints.

Note on Cinnamic Acid.

A reaction by which cinnamic acid can be readily distinguished from benzoic acid and other compounds which resemble it more or less in appearance and properties, is the production of essence of almonds when dry cinnamic acid is treated with sulphuric acid and bichromate of potash. I find that when a small quantity of acid is kept for a few days in contact with sulphuric acid and bichromate of potash, without heating, the odor of hawthorn flowers thus produced gradually changes into an intense odor of honey. What produces the latter is yet unknown.

On various occasions, for some years past, I have endeavored to produce cinnamic acid from the leaves of the bay (*Laurus nobilis*), but with only partial success. The long-continued frost of last winter killed the leaves and some of the branches of a fine bay tree in the garden of my villa at Putney, and these dead leaves contain a good deal of essence of cinnamon as compared with the fresh leaf.

It has been lately asserted that cinnamic acid is a more powerful antiseptic than salicylic acid; but this needs confirmation. It is said to destroy the virus (bacillus) of pulmonary tuberculosis.

Still more recently a spray of essence of cinnamon has been found more effective in the treatment of all forms of malarial fever than the usual treatment by quinine and arsenic [Ed. Am. Drugg.] At Marguelane, in Turkestan, the spraying is performed several times daily in the hospital wards, and is stated to have proved more efficacious than essence of eucalyptus used in the same manner.—Dr. T. L. Phipson in *Chem. News*.

Detection of Cottonseed Oil in Olive Oil.

Prof. Dioscoride Vitali furnishes some new contributions towards the problem of detecting cottonseed oil in olive oil. We quote from *L'Orosi* (13, 361, after *Chem. Centralbl.*):

On mixing *pure olive oil* with twice its volume of ether, a yellowish solution is obtained. If now a few drops of a mixture of equal parts of concentrated sulphuric and nitric acid be added, a brisk reaction is started, after the termination of which the liquid becomes almost colorless.

Cottonseed oil, under the same circumstances, becomes distinctly yellow, and this color also appears in a mixture of both oils, so that a quantity of 10 to 15 per cent of cottonseed oil may still be recognized in a mixture.

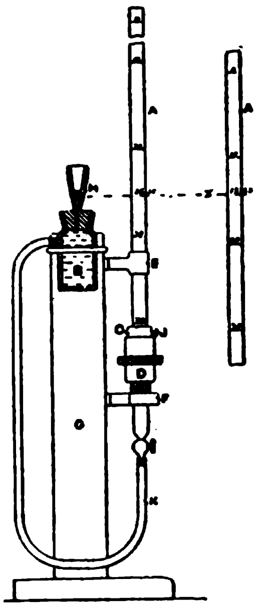
About 5 C.c. of the suspected oil are put into a test tube, mixed with 10 C.c. of ether, and about 5 drops of the acid mixture are added. When the reaction ceases, the mixture will be colorless if the oil was pure olive oil. But if from 10 to 15 per cent of cottonseed oil is present, the mixture is also at first nearly colorless, but on addition of 15 drops more of the acid it will assume a permanent yellow tint. This tint is due to the oxidation of a constituent of the cottonseed oil, probably its coloring matter, for still better results are obtained by treating the ethereal solution of the oil with chlorinated soda and diluted hydrochloric acid.

The same test will detect oil of sesame, which behaves in the same manner.

But cottonseed and sesame oil differ in this, that the latter becomes colorless, and *remains so*, when treated with chlorinated soda and hydrochloric acid. Peanut oil, on the other hand, behaves towards chlorinated soda like olive oil. These two oils, however, can be distinguished by the following behavior: On dissolving olive oil in ether, and *carefully* [!] treating this with potassium chlorate and sulphuric acid, there results a colorless ethereal layer, and below it an aqueous, somewhat turbid and whitish layer. In the case of peanut oil the ethereal layer is yellowish-white, while the aqueous one is turbid and reddish-brown. Cottonseed oil yields a yellow ethereal layer, and a colorless aqueous one. In the case of oil of sesame the latter is green. Sweet oil of almonds behaves like olive oil, but differs from the latter by becoming colored when treated with the acid mixture, and becoming yellow with chlorinated soda and hydrochloric acid.

RAPID DETERMINATION OF THE SPECIFIC GRAVITY OF SOLIDS.

According to *Les Industries*, the apparatus here described furnishes the readiest method of determining the specific gravity of solids.

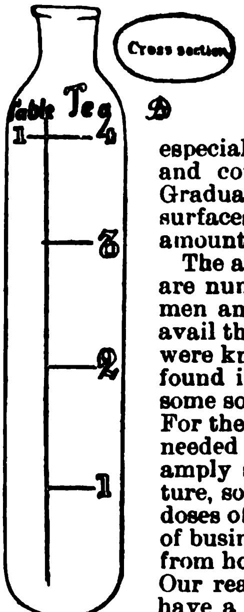


The burette A, held by a clamp, E, is connected, by means of a stout rubber tube, with a bottle, B, provided with a stopper and overflow funnel, H. The capacity of the bottle is exactly known. Supposing the substance whose specific gravity is to be determined is insoluble in water. In this case water is used as the liquid in the burette. In other cases some other liquid, having no solvent action on the substance, is used, the special specific gravity of the latter being taken account of in the calculation.

The first step is to ascertain the volume capacity of the bottle with connections. Water is allowed to flow from the burette (which must be large enough), through the stopcock and tube, into the bottle B until it stands in H at a certain height. The burette is then so adjusted that the level of the liquid in it and in the bottle is absolutely alike.

Next the burette is lowered, the stopper of B removed, and the solid substance introduced. When the water has completely enveloped or permeated it—as the case may be—the burette is raised again until the level of the liquid contained in it is again identical with that in the bottle. The difference between the first and second readings on the scale represents the volume of water in cubic centimeters which has been displaced by the substance. If the latter had previously been weighed in air, in grammes, it is only necessary to divide by the number of cubic centimeters of water displaced in order to find the specific gravity. For accurate determinations, temperature and pressure must be taken into consideration.

A HANDY VIAL.



For some time a vial, of which the adjoining illustration represents two-thirds the actual size, has been sold by a few dispensing apothecaries in this city, and ought to be more generally known. It is especially adapted for an upper vest pocket, and contains just four teaspoonful doses. Graduations, ground upon one of the outer surfaces, enable the user to regulate the amount taken and dispense with a spoon.

The advantages of this simple contrivance are numerous, and there are many business men and travellers who might be glad to avail themselves of such a pocket vial, if it were known to them. Physicians, too, have found it handy for carrying in the pocket some solutions required for an emergency. For the ergot or the chloroform ordinarily needed in most cases of confinement, it is amply sufficient. And for the cough mixture, solution of a bromide or iodide, or the doses of an alterative or tonic which a man of business may require during his absence from home in the daytime, it is admirable. Our readers may find it to their interest to have a few in stock, and some one of our advertisers of glassware can doubtless supply them.

Storer's Dictionary of Solubilities is expected to appear in a revised edition before the end of this year.

Wine Analysis.

According to Ferd. Jean, director of the laboratory of the Paris *Bourse de Commerce*, the following methods are employed there for the analysis of wines:

1. *Estimation of Glycerin.*—Evaporate 250 C.c. of the wine to the volume of 100 C.c., then agitate this concentrated liquid with freshly precipitated plumbic oxide, and render it slightly alkaline with baryta water. Filter, wash, and neutralize the filtrate with dilute sulphuric acid. Concentrate in a flat porcelain capsule, and when the volume of the liquid has been reduced to 50 C.c., incorporate therein 5 Gm. of plumbic oxide, 10 Gm. of sand, and 20 Gm. of barium sulphate, evaporate, and dry at 100° C. During this drying the basin should be covered with a plate of glass to avoid spurting. The dried mass, having been powdered, is extracted with a mixture of equal parts of alcohol and ether, the extraction being continued until 60 C.c. of liquid have been obtained. Thirty C.c. of this liquid are placed in a tared glass capsule, and 20 Gm. of dried and powdered litharge having been added, the whole is evaporated on the water bath and then dried to a constant weight between 160° and 170° C. The other 30 C.c. are evaporated in a tared glass capsule 6 Cm. in diameter, and the residue is placed in the air bath between 160° and 170° C. until a constant weight is obtained.

The weight of residue No. 1, after deducting that of the litharge and capsule employed, *minus* the weight of residue No. 2, being first multiplied by 1.243, and then by 8, gives the weight of glycerin present in 1 liter of wine.

2. *Estimation of Astringent Acids.* (*a*) *Estimation of Œnotannin.*—Concentrate 200 C.c. of wine down to 100 C.c., shake with an excess of freshly precipitated arsenious sulphide, filter, and wash. Concentrate the filtrate to 50 C.c., add 10 Gm. of silica and 20 Gm. of barium sulphate, and dry at 100° C. Powder the residue and extract it with warm ether; evaporate the ether and dissolve the residue in a little alcohol. Take 1 Gm. of powdered hide which has been washed with alcohol, and dry at 100° C. Moisten it with a few drops of distilled water, and, having added the alcoholic extract, allow the whole to macerate for half an hour. Filter through a square of cambric, previously dried and weighed, wash with alcohol, press out excess of liquid, and dry at 100° C.

The increase in weight of the hide multiplied by 4 gives the œnotannin in 1 liter of the wine.

(*b*) *Estimation of Œnogallic Acid.*—Dilute the alcoholic filtrate from the hide with distilled water to 100 C.c., and in 20 C.c. of this estimate the acid by means of a solution of iodine that has been previously standardized with gallic acid as follows:

Prepare solution of iodine in potassium iodide containing 0.2 Gm. of iodine per liter, and also a solution containing 0.125 Gm. of gallic acid in 250 C.c. of distilled water. Mark a beaker at 50 C.c., place into it 10 C.c. of the gallic acid solution and 3 C.c. of cold-saturated solution of sodium bicarbonate. To this add the iodine drop by drop from a burette until a drop of the mixture, tested on thick filter paper impregnated with powdered starch, leaves a stain surrounded by blue. Now add distilled water to the 50 C.c. mark, and continue the addition of the iodine until a similar stain is again obtained. The amount of iodine thus used must be further corrected by making a blank experiment on 50 C.c. of distilled water with 3 C.c. bicarbonate solution, and deducting the amount of iodine required to produce the stain. Having thus standardized the iodine, it is used in a similar manner on the 20 C.c. of the alcoholic liquid from the wine which has been previously neutralized with sodium bicarbonate.

3. *Estimation of Coloring Matter.*—250 C.c. of the wine concentrated by evaporation (but without boiling) to 100 C.c. are rendered freely alkaline by ammonia, and then well shaken up with precipitated arsenious sulphide. The whole is then filtered and washed with distilled water, and the filtrate having been rendered acid by acetic acid—to precipitate any sulphide of arsenic dissolved by the ammonia—is again filtered and washed. The two filters containing the sulphide of arsenic are digested on the water bath in alcohol acidulated with acetic acid, and, the whole having been again filtered, the residue is washed with hot alcohol until all the coloring matter is extracted. Finally the alcoholic solution is evaporatad in a tared capsule, dried at 105° C., and the residual coloring matter is weighed.—*The Analyst*, March, 1891.

New Mode of Preparing Salicylate of Bismuth.

The preparation of this salt is rendered difficult by the fact that bismuth salts are soluble in water only in presence of acids, while the latter do not permit salicylic acid to form any salt. H. Causse has now found that certain salts of ammonium, particularly the chloride, possess the same power as certain acids to render bismuth salts soluble in water. His process is as follows:

Subnitrate of Bismuth	100 parts.
Sodium Salicylate.	120 "
Ammonium Chloride	q.s.
Distilled Water	q.s.

Dissolve the bismuth salt in concentrated hydrochloric acid, which is accompanied by the development of heat and of nitrous fumes. When the solution has become clear, it is siphoned off any sediment remaining, and poured into 1 liter of a cold-saturated solution of chloride of ammonium. Next the free acid is neutralized by the addition of a further supply of the saturated solution of ammonium chloride rendered alkaline by ammonia, until a permanent precipitate begins to form. (Another way to neutralize the free acid, according to the author, is to add more subnitrate of bismuth as long as it is being dissolved [?]). Next the liquid is mixed with the sodium salicylate and 500 parts more of the saturated solution of chloride of ammonium. In a few seconds a voluminous mass of salicylate of bismuth will crystallize out. The whole mass is thrown upon a cotton wad or pellet in a funnel, and washed with water until the chloride of ammonium is removed. Finally the mass is drained and dried at the ordinary temperature.

The resulting salt has the composition $Bi(C_7H_5O_3)_3.4H_2O$, and crystallizes in colorless microscopic prisms resembling anhydrous sulphate of quinine. It is insoluble in cold water, and is decomposed by boiling water. Absolute alcohol likewise effects complete decomposition. The same is done by heating.—*Compt. Rend.* and *Chem. Zeit.*

Compressed Tea.

Tablet tea is manufactured at Hankow in factories belonging to Russian firms there.

It is made of the finest tea dust procurable. The selection of the dust is the work of skilled experts. The cost of the dust varies from 10*d*. a pound upward. This dust is manufactured into tablets by steam machinery. About two ounces and a half of dust are poured into a steel mould on a steel cylinder.

The dust is poured in dry without steaming, and the pressure brought to bear is two tons per tablet. Great care is required in the manufacture and packing of tablet tea, and the cost is comparatively high. The tablets are wrapped first in tinfoil, then in expensive and attractive paper wrappers, and finally packed in tin-lined cases for export to Russia. The tea, it is stated, loses none of its flavor by being pressed into tablets, and, as tablet tea is only one-sixth of the bulk of leaf tea, it is most convenient for travellers, and also for importing into the remoter regions of Russia.

The increase in the export of tea dust from Hankow to 726,729 pounds in 1890, from 140,933 pounds in 1889, is due to the fact that while Indian and Ceylon teas are ousting China tea from the British market, many consumers, being accustomed to the flavor of China tea, wish for it.

To meet this demand grocers use China tea dust to flavor the Indian tea. All the tea dust exported goes to Great Britain. Lately a new commodity has come on the Hankow market, to which the customs give the name of log tea. It is an inferior tea, with stalks packed in the shape of logs, which weigh from 8 pounds to 80 pounds each log. The tea is wrapped in the leaves of the *Bambusa latifolia*, and then reduced in bulk by binding round the log with lengths of split bamboo.

Testing Wax for Adulteration.

At the laboratory of the *Bourse de Commerce*, of Paris, the following method is used for testing wax, according to a report by the director, Mr. Ferdinand Jean (in the *Analyst*):

1. *Estimation of Stearic Acid* (*if present*).—Introduce into a flask 3 or 4 Gm. of the sample for analysis, and bring it to the boiling point with 60 C.c. of alcohol of 96 per cent; shake whilst cooling, and then titrate the alcoholic solution with half-normal soda, employing phenolphthalein as an indicator. Wax being only slightly soluble in cold alcohol, there is no need to take notice of its acidity, and the amount of the mixture can be calculated as stearic acid from the number of cubic centimeters of normal soda used in the titration, knowing that 7 to 8 C.c. half-normal soda equal 1 Gm. of commercial stearic acid.

2. *Estimation of Paraffin or of Myristic Acid.*—To the flask containing the neutralized solution add 3 to 4 C.c. of solution of soda of 50 per cent, attach the flask to an upright condenser, and heat for an hour to saponify. The saponification being complete, distil off the excess of alcohol, put the residue into a capsule, mix with dry and short asbestos, dry at 100°, pulverize, and extract it with warm chloroform (or petroleum-ether), which dissolves the whole of the paraffin and the myristic acid, representing a part of the wax. To separate the paraffin, Horn has recommended acetylization, and solution of the produced ether by means of acetic acid, in which paraffin is insoluble. According to Horn, saponified wax should, under these conditions, yield 50 per cent of matters soluble in glacial acetic acid. Following Horn's process, we have neither been able to separate the paraffin nor to obtain a constant factor for the part of the wax soluble in chloroform.

We effect this separation in the following manner:

The chloroform holding in solution a part of the wax and all of the paraffin is distilled off in a weighed flask, and the residue, having been dried at 100°, is weighed.

Then weigh in a small flask a part of the residue left by the evaporation of the chloroform, and treat it under an upright condenser for an hour with 4 to 5 C.c. of anhydrous acetic acid. The acetylization being complete, pour the resulting fluid into a glass tube graduated in 10 C.c. and divided into tenths; rinse the glass with boiling crystallizable acetic acid, and turn the whole into the graduated tube. The volume of the liquid should be about 9 C.c. Place the tube in a water bath at 90°, then close it up with a cork and shake it forcibly so as to well emulsify the liquids, and replace in the water bath.

When the acetic acid has become clear, the volume of insoluble matter which floats on the acid is read off. Renew the shaking and place in the water bath until a constant volume of paraffin insoluble in acetic acid is obtained, of which calculate the weight, remembering that 1 Gm. of paraffin equals from 1.35 to 1.4 C.c. On deducting the weight of the paraffin from the weight of the residue furnished by the chloroform, we obtain by difference the weight of the portion of the saponified wax soluble in chloroform.

3. *Estimation of Stearin.*—The saponified part insoluble in chloroform is formed by the soap of stearic acid and of stearin and by saponified cerotic acid. To estimate the stearin, dissolve in boiling water, filter to separate the sand and asbestos, and decompose the filtered liquor by a slight excess of nitric acid diluted so as to set free the fatty acids; filter and estimate the glycerin in the filtered liquid (after neutralization and precipitation by plumbic acetate) by the potassium bichromate process. From the weight of the glycerin calculate the stearin or suet, keeping in mind that 5 parts of anhydrous glycerin equal 95 of stearin.

In cases where the proportion of stearin is small, it would be preferable to saponify 10 or 25 Gm. of the substance, and to estimate the glycerin by the bichromate process.

We therefore estimate by this method:

1. Stearic acid by alkalimetry.
2. Paraffin by measuring the part insoluble in acetic acid.
3. A part of the wax (myristic acid) by deducting the paraffin residue from the weight of the residue soluble in chloroform.
4. Stearin by the estimation of glycerin.
5. The second part of the wax (cerotic acid) by difference.

Purifying Platinum by Volatilization.

The Imperial German Physico-Technical Institute ("Physikalisch-technische Reichsanstalt"), during 1890, organized a special department for the study of the method of separation among the metals of the platinum group, and paid particular attention to the methods of purifying platinum. Up to the present time, the purest commercial platinum was made by Johnson, Matthey & Co., of London, and this contained still about 0.02 per cent o impurities, consisting chiefly of silver and rhodiumf German-made platinum has heretofore been more impure. At the instigation of the above-named Institute-W. C. Heraeus, of Hanau, has now succeeded in obtaining platinum containing only 0.01 per cent of foreign metals (chiefly iridium).

In the analysis of the platinum metals, the Institute usually followed the well-known but complicated methods of Stas, Deville, Debray, but recently it began experiments with other methods. One of these consists in separating platinum from the other elements by heating it in a current of chlorine and carbonic oxide (carbon monoxide) gas. This causes the platinum to become volatilized, combined with the gases, and the process has given encouraging results. It is this very process which permits the detection and separation of minute traces of silver and similar metals occasionally occurring in platinum.

While the gaseous compounds of platinum and carbon monoxide have been long ago described by Schützenberger, the recent experiments have thrown much additional light upon them. It was found possible to bring the gaseous compounds into aqueous solution, and to prepare from this, by double decomposition, a series of crystalline derivatives. It was also shown that all the gaseous compounds contain a stable radical of the composition PtCO (of dyad value), from which the carbon monoxide can be separated as gas only under certain circumstances.

Up to the present, the before-described method has not been found suitable for working on the large scale. But it is expected that further experiments will render it practicable.—After *Zeitschr. f. Instrumentenkunde*, 1891, 167.

Test for Mercuric Chloride.

Mr. Borntraeger recently discusses the best methods of detecting traces of mercuric chloride (in *Pharm. Centralhalle*).

He points out that any aqueous, oily, or soap liquid containing mercuric chloride gives immediately with zinc chloride and hydrochloric acid a black-gray color, while with sulphuretted hydrogen or ammonium sulphide it immediately becomes blackened.

When shaken with a mixture of potassium iodide, acetic acid, and ether, and allowed to stand, three layers are formed, the middle one constituting a green zone of the mercurous salt.

The separation is said to be so sharp that when carried out in a narrow test tube it gives approximately quantitative results.—*Pharm. Journ.*

Tellurate of Sodium for Night Sweat in Phthisis.

Combemalle recommends tellurate of sodium in doses of not less than 0.05 Gm. (¾ grain), to be given at night, as an efficient remedy against night sweat in phthisis, and some other diseases accompanied by profuse sweating. To cover its garlicky odor and taste, it is recommended to combine it with oil-sugar of peppermint.—*Gaz. ther.*

[Tellurate of sodium is a rare chemical so far, and quite expensive. It has so many disagreeable or disadvantageous features that it will scarcely displace the remedies at present in use for the above troubles.—Ed. Am. Drugg.]

The Source of Cape and Natal Aloes.

CAPE aloes has hitherto been supposed to be derived from *Aloe ferox*, all authorities agreeing on this subject. Flückiger and Hanbury were the first to draw attention to a new kind of aloes exported from Natal, and therefore called Natal aloes, which is, however, unsuited for medicinal use. Last year the *Bulletin of Miscellaneous Information*, published by the director of the Royal Gardens at Kew, contained a notice that aloes, collected from *Aloe ferox*, was one of the exports from Greytown, the most northern port in Natal. Prof. Flückiger, upon request, received a specimen of this aloes, and upon examination found it to be absolutely identical with the Natal aloes formerly described by him and Hanbury in the "Pharmacographia."

Since the authorities at Kew believe that Mr. J. M. Wood, who reported *Aloe ferox* to be the source of this kind of aloes, has correctly identified the plant, and since it is unlikely that two so widely different species of aloes, the "Cape" and the "Natal," could be derived from one and the same plant, it remains to be seen whether "Cape" aloes is not derived from a hitherto undescribed species.—After *Arch. d. Pharm.*, 229, 121.

Calculating the Specific Gravities of Liquids without the Use of Tables.

THE specific gravities of liquids which do not suffer any alteration of volume when mixed with water (or other liquids) may be determined, without the aid of special specific-gravity tables, in the manner below explained.

In the following formulas and calculations, the figures expressing specific gravity are to be taken as decimal fractions, water being 1.000.

The principle of the calculation will be most readily understood by selecting an example. Supposing we had 1,000 Gm. of a solution of ferric chloride of the specific gravity 1.300, and it were required to dilute this with water so as to bring the specific gravity down to 1.240.

Let us designate by x the amount of water (in grammes) which is to be added; and then let us ascertain the volume (expressed in cubic centimeters) which will be occupied by 1000 Gm. of a liquid of the specific gravity 1.300 mixed with x Gm. of a liquid of the specific gravity 1.000 (viz., water).

Since the volume of a liquid is ascertained by dividing its weight with the specific gravity, and since 1 Gm. of water is equal to 1 C.c., we find the following volumes:

For 1000 Gm. of sol. of ferric chloride of the
spec. grav. 1.300.................................. $\frac{1000}{1.3}$ C.c.
and for x Gm. of water (of spec. grav. 1.000)........ x C.c.
Mixed or added together, these two liquids will,
therefore, occupy the volume of......... $\frac{1000}{1.3} + x$ C.c.

Now, assuming that the required quantities of each liquid (the ferric chloride solution and the water, viz., 1000 Gm. of the former and x Gm. of the latter) had been taken and mixed so as to produce a liquid of the specific gravity 1.240, the volume or space occupied by this liquid will be, according to the rule above given, $\frac{1000 + x}{1.24}$ C.c.

We have, therefore, found two values or terms for the same space or volume, which we may set down in form of an equation, thus:

$$\frac{1000}{1.3} + x = \frac{1000 + x}{1.24}$$

Solving the equation, we obtain

$$1240 + 1.612\,x = 1300 + 1.3\,x$$
$$x = 192.6 \text{ (nearly)}$$

which figure represents the number of grammes of water that have to be added to the 1000 Gm. of the original ferric chloride solution of spec. grav. 1.300 to bring it down to spec. grav. 1.240.

If any other liquid besides water is to be used, the specific gravity of this must be taken into consideration. Supposing a more dilute ferric chloride solution of spec. grav. 1.100 had to be mixed with the stronger, so as to produce a liquid of spec. grav. 1.240; then, following the same train of argument as before, since x Gm. of a ferric chloride solution of spec. grav. 1.100 measure $\frac{x}{1.100}$ C.c., we have the equation

$$\frac{1000}{1.3} + \frac{x}{1.1} = \frac{1000 + x}{1.24}$$

Solving, we obtain

$$1364 + 1.612\,x = 1430 + 1.43\,x$$
$$x = 362.6 \text{ (nearly)}$$

being the number of grammes of the weaker solution of ferric chloride (of spec. grav. 1.100) which must be added to 1000 Gm. of the stronger to produce a liquid of the spec. grav. 1.240.

A general formula for making this reduction by means of a liquid of any specific gravity may therefore be constructed on the principles above explained.

Let us designate the several items entering into the calculation by letters:

G = the number of grammes of the denser liquid to be reduced.
S = the specific gravity of the denser liquid.
D = the specific gravity of the lighter or diluting liquid.
s = the desired specific gravity of the product.

Then we have

$$\frac{G}{S} + \frac{x}{D} = \frac{G + x}{c}$$

hence

$$x = \frac{DG(S-s)}{S(s-D)}$$

Whenever water is the diluent, D becomes 1.

A New Alkali Process.

IN an editorial on the present state of the British alkali trade, the editor of the *Chemist and Druggist* (June 13th) makes comparisons between the most important processes at present in use, and also mentions some of the newer processes. Among the latter—so the editor says—the best is the process patented by Messrs. Haddock & Leith, which purposes to recover the sulphur from the Leblanc vat waste; but instead of combining therewith the manufacture of ammonia soda, it aims at simultaneously converting "salt cake" into carbonate of soda, of a strength and purity equal to ammonia soda, by a wet method of decomposition, and without the use of ammonia. This process is an exceedingly ingenious one, conducted in four stages. The first stage is the manufacture of calcium sulphydrate, which is done by passing sulphuretted hydrogen through an emulsion of Leblanc vat waste. After this is fully charged and allowed to settle, the clear liquor is mixed with a saturated solution of salt cake. The result is that the sodium sulphate and the calcium sulphydrate interact, calcium sulphate being precipitated and sodium sulphydrate remaining in solution. But 4 per cent of calcium sulphate remains in solution—a rather astonishing amount—and is precipitated as carbonate in the third stage. The fourth and final stage, apart from evaporation, consists in the carbonation of the sodium sulphydrate solution, an operation performed by passing it through a tower into which lime-kiln gas (chiefly carbonic acid gas) is forced. Sodium bicarbonate is formed, three-fourths of it crystallizing out; sulphuretted hydrogen is given off, and is collected and utilized as such in the first stage, or is converted into sulphur or sulphuric acid. The mother liquor yields a crop of crystals on evaporation, and the liquor from that is used for neutralization purposes in the course of the process. It will be seen that this invention is the Leblanc, Solvay, and Chance processes rolled into one. It gives the chlorine of the first, takes advantage of the carbonating of the second (without the ammonia), and it advances Chance's idea to being not only a waste-recovering but an alkali-producing process. Chance applies carbonic acid to calcium sulphydrate; Haddock & Leith apply it to the sodium salt. At present the process is only on its trial; but it has advantages over other processes which have failed.

Specific Gravity and Percentage of Hydrochloric Acid.

Prof. Lunge, who has already reinvestigated the densities and percentages of sulphuric and nitric acids, so that his new tables will no doubt be recognized as the most authoritative on record, has now also completed his experiments on hydrochloric acid, and published the results. In view of the importance of the subject for experiments at present conducted in connection with pharmacopœial revision, we will extract from Lunge's new table those values which most nearly correspond to the specific gravities quoted on page 422 of the U. S. Pharmacopœia.

The figures refer to a pure acid at the temperature of 15° C., compared with water at 4° C., and to a vacuum. The values corresponding to ordinary barometric pressure can be easily calculated. Indeed, the experiments themselves were made at various temperatures and pressures, and the results represented by Lunge's table are the figures obtained by calculation for a temperature of 4° C. and a pressure of 0 Mm.

Spec. Grav. at 13° C. Water at 4° C	Per Cent HCl	Spec. Grav. at 15° C. Water at 4° C.	Per Cent HCl
1000	0.16	1110	23.82
1010	2.14	1120	25.75
1020	4.18	1130	27.66
1030	6.15	1140	29.57
1040	10.17	1150	31.52
1050	12.19	1160	33.46
1060	14.17	1170	35.39
1070	16.15	1180	37.28
1080	18.11	1190	39.11
1090	20.01	1200	
1100	21.92		

—After *Zeitschr. f. angew. Chem.*, No. 5.

Salicyl-sulphonic Acid, a new Reagent for Albumin.

Prof. A. McWilliam, of Aberdeen, recently published an elaborate paper on a new test for "albumin and other proteids," discovered by him (in the *Brit. Med. Journ.*, April 17th).

The reagent is salicyl-sulphonic acid (or sulpho-salicylic acid; not to be confounded with salicyl-sulphuric acid), which is prepared by treating salicylic with anhydrous sulphuric acid, or by heating salicylic with strong sulphuric acid. The newly formed acid, in this case, will crystallize out on cooling, when it may be purified by recrystallization from hot water. It appears in long, thin, colorless needles, which are quite soluble in water and melt at 120° C.

This acid is a very delicate test for detecting all kinds of proteid substances in solution, producing therewith a white precipitate which becomes flocculent on boiling. All varieties of so-called albumins have been found to respond to the test; for instance, globulin, fibrin, proteoses, and peptones. But there is a difference when heat is applied. The precipitates caused with proteoses or peptones redissolve on heating, while those produced with ordinary albumin, globulin, fibrin, etc., do not dissolve.

To apply the test in general, a few drops of the aqueous solution of acid are added to the liquid to be tested. If proteids are present in notable amount, the precipitate appears at once. In highly dilute solutions it may require a minute or so until a cloudiness appears.

For the detection of albumin in urine, the test is applied as follows:

"Take a small amount of urine (for example, 20 minims), preferably in a very small test tube, and add a drop or two of a *saturated* watery solution of the reagent. If the urine is strongly alkaline an extra drop or two of the acid should be added, and if no opalescence or precipitate occurs it is well to test the reaction with litmus paper and make sure that the urine has been rendered strongly acid. On adding the reagent, shake the tube quickly so as to mix its contents. Then examine at once. The occurrence of an opalescence or cloudiness *immediately or within a few seconds* (for example, two or three seconds) is a test for proteids intermediate in delicacy between the cold nitric acid test on the one hand and the acetic acid and heat test (in favorable circumstances) on the other. The development of an opalescence some time after (for example, one-half to two minutes) is a more delicate test than even acetic acid and heat, and shows the presence of minute traces of proteids, which are probably insignificant from a clinical point of view, as a rule.

Next heat the contents of the tube to the boiling point. If the precipitate or opalescence is caused by the ordinary "albumin" (albumin and globulin) commonly present in albuminous urine, it does not disappear on heating, but, on the other hand, becomes markedly flocculent. But if the precipitate or opalescence is due to the presence of albumoses or peptones, it clears up on heating (before the boiling point is reached) and reappears when the tube cools.

[*Note by Ed. Amer. Drugg.*—The reaction between salicylic and sulphuric acid, so as to produce a sulphonic derivative, is as follows:

$$\begin{array}{ccccccc} C_7H_6O_3 & + & H_2SO_4 & = & C_7H_5.HSO_3.O_3 & + & H_2O \\ \text{salicylic acid} & & \text{sulphuric acid} & & \text{salicyl-sulphonic acid} & & \text{water} \\ \text{mol. w. } 138 & & 98 & & 236 & & 18 \end{array}$$

The formula for the new acid is, however, better written as follows: $C_6H_3.HSO_3.OH.COOH$. To make the compound, therefore, the two original acids must be taken in molecular proportions, enough of an excess of sulphuric acid being employed to make up for what it may be short of being the absolute "monohydrated" acid.]

Selenite of Ammonium as Alkaloidal Reagent.

In 1885 Lafon announced the fact that a solution of selenite of ammonium in strong sulphuric acid (1 Gm. in 20 C.c.) was a most delicate reagent for identifying codeine. So small a quantity as one-tenth of a milligramme of codeine could be recognized by the test. The reaction consists in the production of a magnificent green color.

A. J. Ferreira da Silva has recently made further experiments with this test, and found it to be much more generally applicable. Lafon had stated that the reagent produced a faintly green tint only with morphine. Ferreira da Silva, however, finds that it produces a very intense greenish-blue tint, which, after half an hour, changes to maroon-yellow without producing any precipitate. After three hours the liquid is deep maroon-brown. No red deposit.

Various other opium alkaloids yield bluish or greenish color reactions, but in these cases there is always a colored deposit after some time.

Atropine, cinchonidine, cinchonine, and pilocarpine yield no coloration whatever.

Brucine yields a reddish or rose color, quickly becoming pale orange. After half an hour the color is amber, and no deposit is formed.

Physostigmine: lemon-yellow tint, turning into orange. After three hours the tint becomes paler.

Cocaine: neither color nor precipitate within half an hour. After three hours the liquid is reddish, and there is a slight (not red) deposit.—After *Compt. Rend.*, 112, 1266.

The other alkaloidal reactions given by the author do not appear to be of practical use.

The Presence of Alcohol in Commercial Ether.

If a clear mixture of 4.5 volumes of a saturated solution of potassium bicarbonate and 1 volume of a saturated solution of mercuric chloride is shaken up with commercial ether, the mixture becomes turbid in ten to twenty minutes, and a white, amorphous precipitate separates out. If further quantities of ether are added, all the mercury is eliminated except traces, whilst the substance which reacted upon the ether is withdrawn from the mercurial solution.

The yellow or brown color imparted to commercial ether on the addition of potassium hydroxide is occasioned by alcohol.—*Arch. d. Pharm.* and *Chem. News.*

Potassium Iodate Proposed as Starting Point in Volumetric Analysis.

Max Groeger points out that potassium iodate, which can easily be prepared in a state of perfect purity, contains no water of crystallization, is permanent in the air, and fulfils every condition which can be expected of an ideal basis for volumetric work.

The salt is prepared in the following manner: Sublimed iodine is added to a moderately strong, hot solution of potassa (which must be as free from carbonate as possible) until it begins to be tinged by free iodine. The solution is then evaporated to dryness, the mass extracted with alcohol, and the undissolved residue repeatedly crystallized from boiling water until the solution no longer affects delicate litmus paper, and does not become blue when it is mixed with dilute sulphuric acid and gelatinized starch (showing the absence of iodide).

The alcoholic extract can be used for the preparation of iodide of potassium. For this purpose it is evaporated, the residue dissolved in water, enough iodine added to produce a decided yellow color, and hydrosulphuric acid passed through to destroy the iodate. The solution is then filtered, evaporated to the point of crystallization, and the product purified by repeated crystallization.

An aqueous solution of the salt must be perfectly neutral to litmus, and must remain colorless when tested with starch and dilute sulphuric acid.

The use of the salt in the preparation of accurate volumetric solutions is very simple.

1. *Iodometric Solution.*—About 0.15 Gm. of the iodate (powdered) is dried at 100° C.; after drying in the exsiccator, it is exactly weighed, dissolved in a little water, mixed with about six times its quantity of pure potassium iodide and an excess of pure hydrochloric acid, and a previously prepared solution of $\frac{1}{10}$ normal hyposulphite of sodium (but which may be a little stronger than $\frac{1}{10}$ normal) gradually added from a burette, gelatinized starch being used as indicator. According to the equation,

$$\underset{\substack{\text{pot.}\\ \text{iodate}}}{KIO_3} + \underset{\substack{\text{pot.}\\ \text{iodide}}}{5KI} + \underset{\substack{\text{hydrochloric}\\ \text{acid}}}{6HCl} = \underset{\substack{\text{pot.}\\ \text{chloride}}}{6KCl} + \underset{\text{water}}{3H_2O} + \underset{\substack{\text{io-}\\ \text{dine}}}{I_6}$$

6 atoms of iodine correspond to 1 molecule of potassium iodate; that is [according to the atomic weights used by the author], 126.54 Gm. of iodine correspond to 35.575 Gm. of iodate. Supposing, then, that we had employed x Gm. of potassium iodate, and that, of the hyposulphite solution, y cubic centimeters had been consumed, each cubic centimeter of the latter will indicate $\frac{126.54\ x}{35.575\ y}$ of iodine, or $\frac{35.569 \times x}{y}$.

In order to prepare a $\frac{1}{10}$ normal acid, it is best to use hydrochloric acid. In this case the above reaction between potassium iodate and iodide is made to take place, so that an exactly measured quantity (about 50 C.c.) of an approximately $\frac{1}{10}$ normal hydrochloric acid is made to react with a slight excess of the two salts (viz., about 2 Gm. of potassium iodate and 12 Gm. iodide). The separated iodine, of course, is in exact proportion to the acid present.

The liberated iodine is then titrated with the previously standardized hyposulphite, and the amount of hydrochloric acid present then calculated, after which the acid solution is brought to the proper volume. On the basis of this $\frac{1}{10}$ acid a $\frac{1}{10}$ alkali solution is easily prepared.

For preparing so-called volumetric solutions, it is only necessary to take ten times the quantity of iodate and iodide above mentioned, and to use an acid ten times stronger.—After *Zeitsch. f. angew. Chem.*

* * *

The Opium Monopoly in the Dutch Indies.—It is reported that, in consequence of the numerous abuses to which it has given rise, the Dutch-Indian Government intends next year to abolish the system of sale by auction of the right to retail opium for smoking purposes. The opium traffic will thenceforth be conducted by the Government itself, upon the *régie* system, prevailing in certain French colonies, and, for tobacco, in France itself.—*Chem. and Drugg.*

Testing Oil of Turpentine.

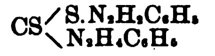
Mr. Hinsdale, of Fayetteville, N. C., some time ago announced a method for discovering petroleum in oil of turpentine, which consists in allowing the suspected mixture to evaporate on a water bath, and weighing the residue. G. Vulpius now confirms Mr. Hinsdale's observations, but introduces some modifications which permit the correct determination of the petroleum to one-tenth.

Upon the surface of the water contained in a porcelain capsule over the steam apparatus, and of a temperature of about 80° C., place two small tared glass capsules [or watch glasses], one of which contains 1 Gm. of the suspected mixture, while the other contains 1 Gm. of *pure* oil of turpentine. As soon as the latter has disappeared the other glass capsule is weighed. The excess of weight found is petroleum, though the small amount of resin which is contained in every, even the purest, oil of turpentine, and which is found deposited in the upper parts of the watch glass which had contained the pure oil of turpentine, should be deducted.

[The form of steam apparatus mentioned by Vulpius is not in use in this country. Any contrivance which will freely expose the contents of the two capsules at a temperature of about 80° C., and permit correct weighing afterwards, will no doubt answer.—Ed. Am. Drugg.]

The Purity of Benzol (Benzene).

The occurrence of carbon bisulphide in crude benzene is well known. Messrs. C. Liebermann and A. Sergewitz point out that most of the commercial pure benzol boiling at 80° to 82° contains this substance, the presence of which can be readily detected by means of phenylhydrazin. On the addition of this reagent to a small quantity of the benzol, phenylhydrazin phenylsulphocarbazide,



$$CS\begin{cases} S.N_2H_2C_6H_5 \\ N_2H_4C_6H_5 \end{cases}$$

which melts at 97°, separates out after a short time.

The presence of carbon bisulphide in so-called pure benzol may sometimes lead, in working with certain substances, to very annoying secondary reactions. The average percentage of CS_2 in such benzol was calculated by the authors, from the weight of sulphocarbazide formed, to be 0.2 to 0.3.

The testing of benzol can easily be carried out and quantitative results obtained by treating 10 C.c. of benzol with 4 to 5 drops of phenylhydrazin, and shaking vigorously at intervals during an hour or an hour and a half. When 0.2 per cent of CS_2 is present, the precipitate appears quite voluminous, and with 0.03 per cent it is still quite easily perceptible; but the limit of the reaction appears to be reached at 0.02 per cent (0.17 Gm. in a liter), and it is necessary to start the crystallization by adding a crystal of the sulphocarbazide. By submitting the benzol to a distillation and testing the first portion of the distillate, the examination can be pushed still further.

This notice will perhaps be sufficient to cause greater care to be taken in separating the first runnings of the purer qualities of benzol.

"Crystallized" benzol has been found by the authors to be always free from carbon bisulphide, with the exception of one sample.

Phenylhydrazin is capable of extended application for the purpose of estimating carbon bisulphide in this manner The authors, for example, succeeded in detecting this impurity in a sample of thiophene, prepared by Volhard's method, which was otherwise pure.—After *Chem. Zeit.* and *Sci. Am. Supp.*

Note on Oil Rosemary.

Some time ago Schimmel & Co., of Leipzig, published certain data regarding oil of rosemary, based upon their own experience.

Among these is the specific gravity, which is stated to be not below 0.900 ("certainly not below 0.890"). Another statement is that the oil polarizes to the right.

Mr. R. A. Cripps, of London, now announces that these data do not correspond with genuine English oil of rosemary, the specific gravity of which may surely be lower, while it polarizes to the left.—After *Pharm. Jour.*

Notes on Pyoktanin.

PYOKTANIN, the trade-marked name of certain aniline colors (methyl-violet or "blue pyoktanin," and aurin [?] or "yellow pyoktanin"), has so far found many supporters, but also many opponents. Its supporters use it because it has been found to be, under certain circumstances, the most efficient antiseptic and bactericide at our disposal. And its opponents base their chief objection upon its disagreeable and extraordinary tinctorial powers. Moreover, some who used it without prejudice have reported it to have failed in their hands.

Regarding the latter it may be said that there may have been various causes for the failure, not due to the agent itself. One of these may have been the age of the solution. It has been found that the bactericidal power of the solutions of these aniline colors is rapidly lost by keeping. Solutions of pyoktanin should be freshly made when wanted for use, or, if to be kept for some days, should be preserved in bottles made of non-actinic glass.

Concerning the bactericidal power of pyoktanin, the experiments of Jaenicke may be quoted. The latter found that the development (but not the life) of the following bacteria was arrested by solutions of the dilution quoted in each case:

	Strength of Solution.
Bacillus of Cholera	1:62,500
Coccus of Pneumonia	1:1,000,000

To destroy their life or vitality, solutions of a higher strength were required, varying from 1 in 1,000 to 1 in 5,000 for the same period of time (one-half minute). In some cases more dilute solutions will accomplish the same purpose, but they require more time.

Pohl, who has recently published a dissertation on this subject, points out that the objection against pyoktanin, based upon its tinctorial power, is perhaps due to the use of this agent in cases where it is not at all wanted. It is not claimed that it has advantages over corrosive sublimate and similar antiseptics, when the object is to prevent a wound from becoming septic. Our present methods—application of dressings, bandages, sprays, etc., containing sublimate, etc., or sterilized by heat—are ample for this purpose. But pyoktanin comes especially into use and fills a real gap when the object is *to disinfect a wound which has become infected or septic*, for which purpose we had heretofore no efficacious agent.

"PYOKTANIN AS AN ANTISEPTIC" was the subject of a paper read before the New York Obstetrical Society by Dr. H. J. Boldt, of New York. He has given this remedy a thorough trial, though only for a short time, but has been very favorably impressed with it. The suppuration ceases more rapidly under its use than under other remedies, and without noticeable effect on the system. He used a 1-per-cent watery solution, which is five to ten times stronger than is recommended. He has used it with success as an intra-uterine medicament.

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Liquefaction of Gases.—M. Raoul Pictet, whose name is associated with the liquefaction of oxygen, has recently communicated some interesting demonstrations of the liquefaction of gases (*Pharm. Cent.*, March 14th, p. 275). As a first source of cold, he uses a liquid mixture obtained by pressure of carbonic acid and sulphurous acid, which is already known as "Pictet's liquid."

By the cold produced in the volatilization of this liquid and the application of a pressure of 4 to 12 atmospheres, nitrous oxide is liquefied. The evaporation cold of the liquid nitrous oxide is then used in the liquefaction of oxygen, nitrogen, hydrogen, and atmospheric air, strong pressure being simultaneously applied in the case of air amounting to 200 atmospheres.

It is stated that upon the opening of the tap of the vessel in which the liquefaction of air has been effected, the air escapes in a splendid blue jet, which immediately changes into a bluish cloud and then disappears. The temperature of the liquefied air reaches —200°. Solidified quicksilver is said to present some beautiful tree-like crystalline forms.—*Pharm. Journ.*

Aniline-Black Marking Inks.

FROM time to time there appear in journals and works of reference certain formulas for preparing indelible ink which have "aniline-black" as a base. Some of these bear evidence that they were written without any experience or knowledge of the subject, by persons unfamiliar with the nature and chemistry of true aniline-black. Such are, for instance, all formulas which direct ready-formed aniline-black to be "dissolved" or "mixed" with other ingredients. Other formulas, again, fail or are unsatisfactory for other reasons.

Mr. R. Wright has recently investigated the subject, and has obtained some practical results, which he has communicated to the *Chemist and Druggist*. We give the essential parts of his paper here.

In order to produce a satisfactory result, the aniline-black must be generated upon the fibre or fabric itself. It is therefore necessary that a mordaunt be first applied to the latter, and afterwards the proper aniline solution which will produce eventually the black color.

The author recommends either of the following mixtures as *mordaunts:*

(*a*)	Potassium Chlorate	20 grains.
	Copper Sulphate	40 "
	Ammonium Chloride	20 "
	Distilled Water	6 fl. dr.
	Thick Mucilage of Acacia	2 "

Dissolve the solids in the water with heat, then add the mucilage.

(*b*)	Potassium Chlorate	20 grains.
	Copper Chloride	40 "
	Ammonium Chloride	20 "
	Sodium Chloride	30 "
	Distilled Water	5 fl. dr.
	Thick Mucilage of Acacia	3 "

Prepare like preceding.

And the following as *developers:*

(*c*)	Aniline	1 fl. dr.
	Toluidine (solid)	10 grains.
	Dilute Hydrochloric Acid	2 fl. dr.
	Mucilage of Acacia	2 "

Dissolve the toluidine in the aniline, add the acid and mucilage, and mix. [The author says he used solid "ortho-toluidine." This must be an error, since this is a liquid, and remains so at temperatures over — 20° C. He evidently means para-toluidine, which forms the starting point for fuchsin.—ED. AM. DRUGG.]

(*d*)	Same as c, with addition of Methylated Spirit [or Alcohol]	1 fl. dr.

The spot upon which the writing is to be made is first to be treated with one of the mordaunts, and dried. It is then to be written upon with one of the aniline solutions by means of a quill pen. The fabric is then laid aside for several days, the longer the better, so that the air may exert its utmost influence upon it.

Finally the fabric is boiled with soap lye, when the writing will come out perfectly black.

Ink for Rubber Stamps.

ACCORDING to Dieterich (*Pharm. Manual*), the following colors and liquids are the best for this purpose.

(*a*) *Liquids.*—Make a mixture of 10 parts of water, 10 of alcohol, 10 of wood vinegar, and 70 of glycerin. For every 100 parts of this liquid use the amounts of coloring matter mentioned in the succeeding list.

(*b*) *Colors.—Blue:* Aniline-blue 1B, 3 parts. *Violet:* Methyl violet 3B, 2 parts. *Cherry red:* Diamond Fuchsin I, 2 parts. *Orange red:* Eosin BBN, 3 parts; as this color does not stand acids, the wood vinegar must here be omitted. *Green:* Aniline-green D (q. s.). *Brown:* Vesuvine B, or Bismarck brown (q. s.). *Black:* Deep-black E (q. s.).

Secret Remedies.—At a recent meeting of the Academy of Medicine, a paper read by M. Lereboullet on the subject of secret remedies, which had been submitted to the Academy, produced much mirth amongst the company. The witty academician reported on a number of remedies, family secrets, and useful and infallible panaceas, of which the composition had been forwarded direct to the Academy either by the healers themselves or through the Home Secretary. The majority of the inventors are artisans—shepherds, blacksmiths, nurses, barbers, etc. A few, however, come from the more educated classes—country clergymen, magistrates, teachers, retired civil servants, etc. All have the utmost confidence in the efficacy of the remedy they propose. They generally declare it to be an heirloom in their own family, and obtained from an aged savant or an octogenarian lady who had possessed the secret for several generations. The extolled remedy is rarely an innovation. Sometimes it has been exhumed from an "old book," or it may be from a "dusty parchment," discovered in a neighboring convent which had been pillaged during the Revolution. Some correspondents have no other object in their communication than a desire to benefit their fellow-creatures. Others propose to the Academy the most fantastic conditions for the disposal of their remedy. Very few of the remedies are of a therapeutic nature. Nearly all are tainted in some way by superstition.—PARIS CORRESPONDENT of *Chem. and Drugg.*

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Macassar Oil.—The oil from the seeds of the *Schleichera trijuga* Willd., from the Sunda Islands, where it passes under the name of "macassar oil" and enjoys a great reputation as a hair dressing and means of removing scurf and eczema, has been submitted to examination by Messrs. Thümmel & Kwasnick (*Pharm. Zeit.*, May 20th, p. 314). It was found that the seeds, which contained no starch grains, yielded to petroleum-ether 68 per cent of fixed oil, but from the seeds freed from epidermis only 45.8 per cent was obtained by pressure. The oil was in both cases of the consistence of butter, yellow, mild in taste, and with an odor of bitter almonds. It melted at 21° to 22° C., but after long standing the more solid glycerides separated, melting first at 28°, and appearing under the microscope as fine needles. The fatty acids, with the exception of 3.14 per cent of free oleic acid, were present as glycerides. Of those in combination, 70 per cent consisted of oleic acid, and of the solid fatty acids 5 per cent with palmitic acid and 25 per cent arachic acid, the characteristic of the ground nut. Lauric acid was not present; and of the volatile fat acids, only acetic acid and no butyric acid could be detected. Hydrocyanic acid was found in the oil and in the seeds, being determined as 0.03 per cent in the former and 0.62 per cent in the latter. No amygdalin could be detected in the seeds, but hydrocyanic acid, benzaldehyde, and grape sugar, possibly the decomposition products of it, were found. A small quantity of cane sugar was also separated in the crystallized form.—*Pharm. Journ.*

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Opium as Currency.—In parts of the Hankow district of China opium is used as a medium of exchange, and the consul there explains the curious circumstance in this way: Commerce, except along the water routes, is in a primitive condition. The great weight of the copper coinage renders it unsuitable for exchange. Silver, which is used in the large towns, is used in bulk by weight. It is melted into lumps of varying purity and weight; the most generally used vary from 68 to 70 ounces each. The inconvenience of dividing it is a serious drawback to its being used in the country, as is also the difficulty of testing its pureness. The credit of the native bankers is not widely enough established to give an extended currency to their notes. Under these conditions opium is found useful, in addition to pure barter which still prevails to some extent, in facilitating the exchange of commodities. In this respect it has three advantages—it is almost universally in demand, it is light and portable, and it is easily divided into small quantities.—*Chem. and Drugg.*

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NEWS AND NOTES.

NEW ENGLAND.

THE MASSACHUSETTS PHARMACEUTICAL ASSOCIATION held its tenth annual meeting in the parlors of the Atlantic House at Nantasket Beach, a noted summer resort on the south shore of Massachusetts Bay, some ten miles from Boston, beginning Tuesday, June 23d, and lasting three days.

The first session was taken up by reports of committees and officials, and the president's address. The report of the treasurer showed a balance of $457.69 in the treasury.

Secretary Colcord having, on account of inability to attend preliminary meetings, resigned in May, and being prevented from attending the meeting, there was no report by the secretary *pro tem.*

A vote of thanks was tendered Hon. G. T. Gilman, of the State Senate, for his able and persistent efforts in behalf of the Association in securing favorable legislation for the Board of Pharmacy.

The second session was called to order June 24th at 10:30 A.M. A vote of thanks was extended to Vice-President G. W. Cobb for his faithfulness and efforts made during the winter to secure more living remuneration for his fellowcraft, and he was made an honorary life member of the Association. A similar vote was enacted in behalf of ex-Secretary J. W. Colcord, as an expression of appreciation of his labors in behalf of the Association during the past nine years in which he has held the office.

A motion was adopted requesting the president to petition the next legislature to make it a penal offence for first conviction for a druggist or assistant to sell liquor by the glass or to be drunk on the premises. It will make no difference whether they are licensed or not.

It was voted to offer prizes of $25, $10, and $5, open to all clerks under twenty-one years of age presenting papers to be read before the Association at its annual meetings. The president was instructed to petition that druggists be excused from jury duty. The sum of $150 was taken from the treasury and added to the permanent fund.

The third session was held on the afternoon of the second day. The following officers were elected to serve the Association the coming year: President, Henry M. Whitford, of Lawrence; first vice-president, J. A. Rice, of Milney; second vice-president, W. W. Bartlet, of Boston; third vice-president, C. P. Alden, of Springfield; permanent secretary, M. L. H. Leavitt, of Boston; treasurer, Tom. B. Nichols, of Salem; trustees of permanent fund, F. E. Mole of Adams, C. A. West of Boston, F. E. Whiting of Great Barrington. The matter of co-operative manufacturing and selling, after a lengthy and lively debate, was indefinitely postponed by dismissing the committee. In the evening at 7:45 an excellent banquet was served, about one hundred and fifty participating. It was one of the most elegant affairs in the history of the organization, and was followed by a dance, for which the wholesale druggists of Boston provided music.

The closing session was held Thursday morning, and was principally devoted to the discussion of trade matters, particularly the outlook for future protection. The Hood plan was ably discussed and defended by some of the leading members, and a vote of thanks was passed to Messrs. C. I. Hood & Co. for making an honest and strenuous effort during the winter and spring to put a stop to indiscriminate cutting, and regrets were expressed that owing to various causes the attempt failed. The plan proposed by the American Pharmaceutical Association was discussed in all its bearings and fully concurred in. The Association then adjourned to meet at such time and place as the executive committee shall select (probably some city in the western portion of the State, during June next).

The largest attendance was at the second session, and aggregated about one hundred. It was a lively meeting, and all present appeared to enjoy themselves to the fullest. About twenty-five new members were added to the roll. Papers were rather a scarce commodity, but whether this was due to want of effort on the part of the Committee on Papers, to lack of interesting subjects, or the well-known modesty of the members, is unknown, but probably the latter.

After adjournment the members took a ride for two or three hours over the famous Jerusalem road, along the ocean front.

A young man in the employ of W. W. Bartlet, pharmacist, 675 Shawmut ave., Boston, was seriously injured, July 2d, by jumping from an electric car while in motion and striking against a loaded team.

A man named Doherty, weary of life, purchased laudanum from Dr. Arthur Hudson, of Newton, June 24th, and suicided. No blame is attached to the doctor. Cause, inebriation, which the unfortunate was unable to conquer.

MICHIGAN.

The School of Pharmacy of the University of Michigan held its twenty-third annual commencement at Ann Arbor, on Thursday, June 25th, 1891. The degrees conferred were as follows, in all 38.

Pharmaceutical Chemist.—Arthur Winfield Adams, Shinichi Ando, William Fuller Ashley, Robert M. Berry, Harry Lamont Bird, Perry Briggs, Homer Burgess, Arthur Campbell, Alfred Payson Churchill, John Ward Corbin, Frank Frederick Davis, Edith Emma Greaves, Frank Albert Green, D.D.S., Joseph Clement Hearne, John F. Hitchcock, John Loren Hubbard, Frank Pomfret Huested, Edward Morse Kennedy, Joseph Catlin King, Harry Cross Loudenbeck, Thomas Henry McGee, Benjamin Lindley Murray, Frank J. Peck, Dorian Melancthon Russell, Walter Karl Schmidt, Frank Irving Shepherd, Henry Fred Smith, Henry Persse Snow, Garrie Greene Van Schoonhoven, James Wheeler Whitney.

Master of Pharmacy.—Harry Kahn, Ph.G.

Bachelor of Science in Chemistry.—Frank Riley Ashley, George Oswin Higley, Stillman George Jenks, Abraham Lincoln Knisely, Walter Hammond Nichols, Julius Otto Schlotterbeck, Ph.C., Darius Parsons Shuler, Ph.C. Also the Honorary Degree of *Master of Pharmacy* was conferred upon Mr. Giles Lewis, of Chicago, holder of a certificate of proficiency for chemical and pharmaceutical work in this University in 1865–'67.

The exercises of Commencement Day were held for all departments together in University Hall, with an oration upon "The Progress of Truth" by President Daniel C. Gilman, of Johns Hopkins University. The entire number of graduates upon examination in all departments was 620. Upon Alumni Day, Wednesday, a business meeting of the alumni of the School of Pharmacy was held in Room A of the Chemical Building at 10:30 A.M.; members of the classes of '90, '89, '87, '86, '84, '75, and '71 were present. A committee was appointed to collate the by-laws and statutes of the society, and to submit the same by letter with any proposed new provisions of the constitution to the membership of the society for adoption, and after reply by the members to republish the constitution and enactments without further delay. It was voted to invite all non-graduates, students of the school, to attend the meetings of the society, and to participate in the same as associate members without vote. This being the year for the election of officers, the following were elected for the regular term of two years: President, J. O. Schlotterbeck, of '87; vice-presidents, C. W. Parsons, of 81, E. C. Bassett, of '83, and D. M. Russell, of '91; recording secretary, B. C. Hessee, of '89; corresponding secretary and treasurer, A. E. Mummery, of '85, addressed at Ann Arbor, Mich. The colors, cream and crushed strawberry, worn by '91, were adopted by vote as the indicative colors of this department of the university. The festoons of the ceiling of Room A were of the colors just mentioned, while the walls displayed the University colors, "the yellow and blue," all these decorations being arranged by the class of '91. The members of the graduating class presented themselves as members of the society, and on signing the constitution and by-laws, they were received.

After the business meeting, the members convened in Hangstefer's Hall and discussed the merits of a liberal repast. The ménu was presented with a fine frontispiece of views of the chemical laboratory at different stages since 1856, grouped together in photograph, the artistic work of Professor Stevens and his class in photography. After dinner the address of the retiring president, Professor A. B. Stevens, of the class of '75, was given. Speeches were made by Mr. Murray, of the graduating class; Mr. Boyce, of the class of '90, instructor in pharmacy in Kansas University; and some remarks were made by the dean, Dr. Prescott. The entertainment was diversified by very fine orchestral music by members of the class of '91.

The following is the list of theses of the graduating class: Mr. Adams: Limits of Recovery of Atropine in Assays. Mr. Ando: Nitrogen Determinations. Mr. Ashley: Cinchona Assays in Commercial Samples. Mr. Berry: A Cabinet of the Elixirs of the National Formulary. Mr. Bird: Valuation of Mercurial Ointment. Mr. Briggs: Antiferments. Mr. Burgess: Capsicum and its Adulterations. Mr. Campbell: Determination of Poisons in Cosmetics. Mr. Chapel: Syrup of Citro-Iodide of Iron. Mr. Churchill: A Cabinet of the Elixirs of the National Formulary. Mr. Corbin: Microscopical Examinations of Saffron for its Adulterations. Mr. Davis: Oatmeal and its Adulterations. Miss Groaves: A Cabinet of Preparations of Manganese Salts. Mr. Hearne: Digestive Power of Pepsin, Pancreatin, and Papain (Papaytin). Mr. Hitchcock: Ceanothus Americanus; a Plant Analysis. Mr. Hubbard: Remedies for Rheumatism. Mr. Huested: An Index to the Literature of the Hydroxybenzoic Acids. Mr. Kahn, Ph.G.[*]: Hysteronica; a Plant Analysis. Horse Nettle Berries; a Plant Analysis. Mr. Kennedy: Crystallization; a Cabinet of Preparations. Mr. King: Salts of Hydrastine and Berberine; a Cabinet of their Preparations. Mr. Laudenbeck: Pichi; a Plant Analysis. Mr. McGee: Action of Hydrobromic Acid on Chlorides. Mr. Murray: Cobalt and Nickel Salts; a Cabinet of Preparations. Mr. Peck: Valuation of Tinctures and Fluid Extracts of Nux Vomica. Mr. Russell: Berberis Nervosa; a Plant Analysis. Mr. Schmidt: Gelsemium Sempervirens; Analysis for an Alkaloid. Mr. Shepherd: The Adulterations of Coffee. Mr. Smith: Cannabis Indica; Analysis for an Alkaloid. Mr. Snow: A Cabinet of the Liquors of the National Formulary. Mr. Ven Schoonhoven: Amyl Nitrite and Related Preparations. Mr. Whitney: A Cabinet of the Dry Preparations of the National Formulary.

Prizes for the Best College Work.—Gilpin, Langdon & Co., of Baltimore, Md., desiring to stimulate the attainment of excellence in the work of colleges of pharmacy, made offer to the School of Pharmacy of the University of Michigan of a prize in one of the studies of each of the classes in the year '90–'91. This School of Pharmacy does not favor the policy of prize competition in college, but in this instance the offer was accepted so far as to permit the grant of prizes, first, to the best paper in final examination in the senior class, and, second, to the best one of the regular set of pharmacopœial preparations in the required laboratory work of the junior class The prizes consisted of 60 samples of crude drugs in assorted powders, 1 and 2 pounds each; 30 pound samples of assayed powders; 25 pound samples of choice preparations, chiefly dry materials; and 14 selected articles of fine pharmaceutical apparatus. Altogether, each prize presented an array most inviting to any pharmaceutical student. The judges were, for materia medica, Prof. J. J. Abel, of the chair of materia medica in the Department of Medicine in the University, with Mr. Otmar Eberbach, of the Michigan State Board of Pharmacy; and for the laboratory work in preparations, Messrs. A. S. Parker and A. W. Allen, pharmacists, of Detroit, and A. C. Schumacher, of Ann Arbor. The junior prize was gained by "No. 37," who proved to be Mr. Richard Fischer, of New Ulm, Minnesota, from the store of C. L. Roos, Pharmaceutical Class of '83. The senior prize was gained by "Chimaphila," who was found to be Mr. Joseph E. Carmody, of Watervliet, Michigan. Mr. Carmody is a senior in several of the studies, but a junior in a few studies, having entered the school for the second semester of 1889-90.

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[*] For the degree of Master in Pharmacy.

ST. LOUIS.

THE weather in this city and surrounding country is rather difficult to understand and very hard to predict with any degree of certainty. The almanacs seem to be about as good weather prophets as the Government Signal Service.

The general effect on trade of our uncertain meteorological conditions has not been bad for the retailers. All seem to feel well, and consequently must be doing well. The live pharmacist, who has an eye to business and the welfare of trade, may not always be a weather prophet or place faith in the signs of the goose bone, but he should observe the relations of the weather to his business, and always be ready for the particular kind of trade that each style of weather favors.

The wholesale trade of this section is running along smoothly, with no peculiarities worthy of note.

Again we hear a rumor of a new wholesale house for St. Louis. The whispered word is that two prominent members of one of the smaller firms of this city will withdraw and start a new business. As neither of them has money, it is a question where the funds can be found.

Only one of the jobbing drug firms of this city is owned by capital furnished by outside men. All of the other firms have money owned by those who have grown up or old in the wholesale drug business, and it is counted as an advantage to the corporations.

CLAY W. JOHNSTON, who for years has been with the Collins Brothers' Drug Co., is now on the road for the Meyer Brothers' Drug Co.

Travelling men, like drug clerks, change around once in a while, but it is seldom that one gives up the trade for some other occupation. As a rule, the commercial travellers are supplied from the employees of the house, where they have learned the ways of the firm and business. When once on the road, they are liable to remain as long as they can see to write orders. Once in a while a travelling man buys a retail store and settles down, but such cases are rare. About one year ago a drug clerk left an employer and opened a new store in the neighborhood, to run him out of business. The young proprietor also declared that he would not stop short at such destruction, but would soon have the trade of a large territory and close up more than one store. To-day the young man is wondering how he can pay his rent, for trade is dull and money does not come in to keep up expenses. This is the history of more than one druggist who tells how he will demoralize business for his neighbors. If more energy had been given to business and less to talk about competitors, the case would have been different.

The St. Louis Club of Microscopists held an interesting meeting at the office of the president this month. The summer months do not weaken the vigor of the club.

CHICAGO.

THE trade of this city are extremely interested in an article which appeared in a St. Louis trade journal June 1st. It seems that the Kansas City Retail Druggists' Association took it upon themselves to investigate the subject of the cutting of prices by dry-goods and department stores, and to find, if possible, their source of supply. What they found and what they published is, as the article was headed, "Mighty Interesting Reading." Detectives were sent here to interview the buyers of these stores, and to purchase goods, in the name of some fictitious dry-goods firm, from our wholesale druggists. According to the article, every jobbing house but one is guilty. The lucky house which escaped their censure positively refused to have anything to do with selling a dry-goods store.

Tuesday, June 16th, a mass meeting of the retail trade was held at the Sherman House, and the wholesalers were asked to be present. All of them were represented, and the meeting was unusually large and interesting. Several druggists from adjoining cities were present. After the call to order, Prof. A. E. Ebert—who, by the way, has been especially active in this matter—arose and said that he understood that certain wholesalers had come prepared with statements and affidavits to show that they were unjustly accused of selling to cutters, and that if there were any of such present he hoped that they would let the past be buried, and would devote their attention to formulating some plan for future protection. He deprecated the raking-up of any old quarrels, and said that he hoped the meeting would be harmonious, and that much lasting good would be accomplished for both the jobber and the retailer.

Mr. Hugo Martin, however, objected to shutting off discussion as to the past acts of the wholesalers, and moved that they be allowed to explain matters and state what they intended to do hereafter.

Mr. Jamieson moved as a substitute that a committee of five be appointed to investigate the matter and report to this meeting, which substitute was laid on the table. The original motion of Mr. Martin was adopted.

Mr. Peter Van Schaack, for the wholesalers, then addressed the meeting. In the course of his remarks he denounced the article in the St. Louis paper as false in every particular, and read affidavits to show that his house had not done what the article claimed. He was followed by Mr. Lange, for Morrison, Plummer & Co., and Albert Hunt, for Fuller & Fuller Co. Mr. Dawson, of Robert Stevenson & Co., claimed that no one could truthfully say that his house had sold a single dry-goods cutter in the five years that they had been in business.

Mr. Jamieson then moved that the wholesalers be requested to stop the practice of selling to consumers at wholesale prices, which motion was carried unanimously amid great applause. On motion the chair then appointed the following committees:

To Ask Wholesalers to Desist from Selling to Cutters: Messrs. Bodeman, Ebert, and Jamieson.

To Present the Question to the Illinois Pharmaceutical Association: Messrs. Hugo Martin, Feldkamp, and Scherer.

To Bring About a Union of the Leading Associations of the West: Messrs. Bodeman, Blood, and McPherson.

To Keep an Eye on the Cutting Problem in Chicago: Messrs. Kerr, Obermann, and Dyche.

After transacting some routine business the meeting then adjourned.

It is reported that Matkin Bros., who recently opened a fine drug store on 43d street, are to occupy the store now nearing completion on the northwest corner of State and Van Buren streets. Elkins, the well-known shoe man, will be interested in it. Probably F. G. Secord, who has occupied the opposite corner for several years, is also interested in it, but in a different way.

The Alkaloidal Pharmacal Company has been organized with a capital stock of $50,000, for the manufacture of pharmaceutical and other preparations. The incorporators are Edwin Pynchon, P. S. Hayes, W. T. Thackeray, Stuart Johnson, and J. A. Robinson.

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MR. F. K. STEARNS, son of the founder of the Detroit house of Frederick Stearns & Co., and president of the present stock company, is taking his first vacation in sixteen years, having gone to Europe for four months. It is not to be presumed, however, that the business of the establishment is suspended meanwhile.

American Druggist
AN ILLUSTRATED TRADE JOURNAL
VOL. XX. NO. 15. NEW YORK, AUGUST 1st, 1891. WHOLE NO. 213.

Progress of Chemical Theory.

The last chemical lecture course of the Franklin Institute was inaugurated by an address from Dr. Persifor Fraser on "The Progress of Chemical Theory: its Helps and Hindrances," which has only just now become accessible. We select from it some portions relating to the chemical knowledge possessed by the ancients, and to the development of chemical views up to the time of the phlogiston theory.

At the very outset of the subject we find a generalization of old Democritus (who lived 450 B.C.) so astounding in its character, and so accurate in most of its statements, that only in the past few years have chemists been able to reach these profound thoughts thrown across the ages into the midst of the civilization of our time, as the legend has it that Bruce's heart was thrown by the Douglas into the hosts of the Saracens to stimulate the ardor of the Christian knights to charge and recover it. But, unfortunately, no such effect was produced by the good old laughing philosopher; though at a snail's pace, and after a lapse of 2,300 years, we have reached the spot. Briefly, as transmitted to Epicurus, and expanded by Lucretius B.C. 99–55, it was thus:

The universe consists of *atoms* and *space*. The atoms are of many forms and of different weights, and the number of atoms of each form infinite. Change is only the combination and separation of atoms! Atoms are in constant motion. "First beginnings" or atoms are never destroyed or worn out. The difference between a hard body like iron and a soft body like air is that in the first the atoms move to and fro within small distances; in the soft body they move freely or rebound from each other only at long intervals.

Bodies are partly "first beginnings," partly unions of "first beginnings." The properties of the bodies formed of the groupings of "first beginnings" need not be like the properties of the "first beginnings" themselves. "It matters much with what others and in what positions the first beginnings of things are held in union, and what motions they do mutually impart and receive."

These views are extraordinary, and with the exception of the difference in the form of atoms, which is a point beyond what we have been able to reach even now, the above contains a very fair statement of the atomic theory which is held by the most advanced chemists to-day.

How Democritus could have reached such conclusions is a mystery, but his annunciation of these recondite truths very well illustrates the fact that an hypothesis, be it never so beautiful and even true, if unaccompanied by facts to support it, in no way helps the progress of natural science.

Like every other guess, it indicates merely the frame of mind of the man making it. It is like a floating shadow on the sea of time. Perhaps it defines substance, perhaps only a cloud of fancy.

This seed thrown off by Democritus found no soil of facts on which to grow from his time until late in the present century, although Gassendi, Canon, and Provost at Digne, in France, after ages of ignorance, proposed it again, but without proof; and it is thought to have influenced the minds of Newton and Boyle.

This, then, is one example of an occurrence in the history of the science which to all appearance neither helped nor obstructed its progress, unless in the indirect way of teaching men's minds to grasp large and comprehensive thoughts. All could not have been ignorance and degradation in Abdera (Thrace), or Miletus, or Athens, where a language existed capable of conveying from mind to mind thoughts like these, and where a mind was capable of conceiving such thoughts.

It teaches the student of natural history a lesson in addition to that of the old traveller's speculations, and it may serve to illustrate the difference which the late Prof. Clifford, of Cambridge, pointed out between accepting those conclusions of natural science which one has been taught but has not personally investigated, and accepting what is said to have been revealed, but which, it is acknowledged, is not susceptible of any proof. In the one case the way is open to any one to pursue any single direction which has been before taken, measuring and judging of the correctness of the steps of one's predecessor; but in the other case there is no path anywhere, and the correctness of the position assumed cannot be judged. It is the difference between, on the one hand, handing the keys of a hundred trunks to a custom-house inspector, who has at best time to examine but one or two, asking him to satisfy himself of the accuracy of your description; and, on the other, telling him that something indescribable ought to convince him more thoroughly of the contents of the trunks which he cannot inspect than of those which he can. Speaking generally, it may be said that a proposition of which the steps which led to its acceptance cannot be indicated and followed, has no place at all in the domain of science, though it may be true.

Such propositions were those of Democritus above given, and it is quite just that in the absence of logical proof they should have been excluded from the realm of science, and that to him who first showed reason for believing them should be accorded the honor of their discovery.

Of much less importance is the next hypothesis of the nature of things which we find annunciated by Aristotle in his quadrilateral of states: solid, fluid, dry (or warm), and moist (or cold), or what he supposed to be the elements of all bodies, viz., earth, air, fire, and water. It was unfortunate, and yet in accordance with the usual march of events, that this utterly inadequate and narrow guess should have fettered men's minds for 2,000 years, owing to the mighty hold which Aristotle took of all nations. (See Aristotle, "A Chapter from the History of Science," Lewes.)

As his historian remarks, Aristotle's works had a prodigious influence in Asia and Europe and Africa; among the Persians, Arabs, and in Germany, where part of his Ethics was read in the churches on Sundays instead of the Bible. In the middle ages, too, these elements of Aristotle were imbued with a mysticism more than Platonian.

It was the spirit of that middle age, when the ignorant classes, being the powers, made patient scientific work difficult and dangerous, that learning was concealed under the mask of paradox and cryptogram, as if it were a crime. Whatever Aristotle's view of his elements may have been, it took a new direction, beginning with Geber, in the eighth century.

The first chemists were alchemists, who sought the transmutation of base metals into gold—the philosopher's stone and the elixir of life. These were represented by Geber (an Arabian alchemist of 760), Albert von Bollstädt (1193–1280), Roger Bacon (1214–1294), Raymond Lull (1235–1315), Arnald de Villanova, Caletonia (1235–1314), etc.

Those who examined physical problems retained the Aristotelian view, while the alchemists took more or less modified forms of Geber's doctrine that the metals were composed of mercury and sulphur. As an instance of the confusion which reigned in the ideas of this time, some believed that these constituents of metals were real sulphur and real mercury, while others believed that qualities were intended by these terms. Geber ascribed to the sulphur the property of giving different colors to the metals.

At the end of the fifteenth century the alchemists had added salt to mercury and sulphur. Many regarded the Aristotelian elements as the ultimate, and mercury, sulphur, and salt as the intermediate or proximate elements —as, for example, Basil Valentine, who extended the number of substances of which these were the ultimate elements from metals to all known matter, but denied that they were the common substances which we know under their names.

In the early part of the sixteenth century the failure to find the philosopher's stone led to the decadence of alchemistical or transmutation chemistry, and the rise of iatrochemistry, or that of healing. Paracelsus (1493–1541) taught that in a burning body the sulphur quality represented the inflammability, the mercury the sublimation, and the salt the ashes.

From this to the end of the seventeenth century disputes as to tenets were numerous, but no real progress was made. Agricola (1490–1555) attacked Paracelsus and fell back upon Aristotle. Libavius wrote the first treatise on chemistry (1595). Van Helmont (1577–1644) denied all Paracelsus' views and sought a universal solvent, which should be a panacea. He first recognized the existence of gases and quantitative relations, and opposed Aristotle's doctrines that fire was a body or earth an element, but believed water and air were such. Glauber (1603–1668), though possessing variable views, invented better means for separating bodies. Sumert (1572–1637), Willis (1621–1677), Lemery (1645–1715) believed in five first principles —mercury (spirit), sulphur (oil), salt, water (phlegma), and earth. Lemery taught that these were in rapid motion, and thus gave rise to the obvious properties of things. He explained the well-known phenomenon of the calxes of the metals weighing more than the metals themselves, by supposing that in burning they absorbed fire materials.

The real philosophy of chemistry commences with Robert Boyle (1622–1691), who denied the accuracy of the doctrines both of Aristotle and the later alchemical and iatro improvements upon them. He believed that heat had not the power to transform complex substances into their constituents, but, on the contrary, sometimes produced complex out of simple substances, and sometimes was without effect. Other agencies than heat could produce the same effects. He strongly denied that one could predict the number of simple substances, as Aristotle and his successors had done. He thought it probable, however, *that the so-called elements consisted of the same kind of matter*, differing only in the size, form, etc., of their respective smallest parts. (See Kopp's "Geschichte der Chemie") . . .

. . . Both by Boyle's destructions and by his conceptions he aided the progress of chemical theory as few have done since his time; and chemistry, or the study of the most intimate relations of matter, as distinguished from alchemy, magic, or the healing art, may fairly be said to have started with Robert Boyle.

Singularly enough, the first sapling to spring up and occupy the new clearing made by Boyle was an error so gross that it seems to the youngest student of to-day grotesque in its clumsiness; and yet, defended by some of the sublimest of sophists, it took one hundred years to overthrow it. And the most instructive part of its history is that it was finally overthrown by an argument which Boyle himself had employed—which had been employed by other sceptics, and explained away by the phlogistonists, and was ultimately and successfully refuted with the same experimental proof by a countryman of Boyle. It is often the case that an attack in front, over the very ground of numberless previous repulses, is successful, and it was the case here, as shall be briefly shown.

Stahl (1660–1734) was a physician of independent views, who adopted Becker's theory of combustion, or the changeability of bodies by heat. He believed that he had settled experimentally this question: "Is a common quality present in sulphur and carbon, or is one contained in the other?"

The generally accepted view at that time was diametrically opposite to that which Boyle held of combustion, and might be stated thus: Sulphur consists of oil of vitriol and some combustible body, which latter escapes in burning. Stahl combined oil of vitriol with an alkali, and, heating the combination with carbon, obtained an alkaline sulphide similar to that produced by sulphur and an alkali. From this sulphur (or vitriol) can be separated. Therefore the combustible in carbon and sulphur was the same.

Heating calxes of the metals with carbon, there resulted the metals. The metals were then composed of the calxes and this substance. Fats and oils produced the same effect with the calxes, and hence in them, too, was the same combustible substance.

Stahl called this combustible "Phlogiston."

This hypothesis was rapidly installed into the rights and dignity of a theory, and rallied around it as such some of the brightest minds for three generations.

It was not only faulty in its conclusions, but inadmissible in its steps, and should have incurred the opposition of every intelligent man who understood the limitations of inductive philosophy; but it occupied the vacant space left bare by the labors of Boyle, and, with a growth as luxurious as it was pernicious to the attainment of truth, obstructed in many ways all valuable advance of chemical theory while it lasted.

Magnesia as an Intensifier and Preservative of Peroxide of Hydrogen.

It was ascertained some time ago that when calcined magnesia is added to peroxide of hydrogen the bleaching action of the latter upon cotton is greatly intensified.

Prud'homme has recently studied this behavior, and has found that there is produced a peroxide of magnesium which is much more stable than the peroxide of hydrogen, even at a boiling temperature.

If a 6 volume peroxide of hydrogen is diluted with 10 parts of water, and then boiled for half an hour, its strength is reduced in the proportion of 100 to 10.

But if, under the same conditions, there are added 5 Gm. of calcined magnesia for every 100 parts of peroxide present, the half-hour's boiling will reduce the strength in H_2O only by one-tenth (from 100 to 90).

The formation of the peroxide of magnesium is rendered evident by proceeding as follows:

Place calcined magnesia [5 parts] in contact with a 3-volume peroxide of hydrogen [100 parts] at the ordinary temperature, and allow them to react for some time [the original says "from several hours to several days"]. Then filter, wash the contents of the filter, and dry at 100° to 105° C.

On assaying the product with permanganate of potassium, it will be found to have the composition $3Mg(OH)_2.MgO(OH)_2$. This compound loses its active oxygen at a temperature of about 300° C.

The bleaching effect of a mixture of magnesia and peroxide of magnesium is due to both agents acting together. When fatty substances, such as oils, are bleached by these agents at a boiling temperature, there is an abundant escape of carbonic acid gas, due to the oxidation of glycerin.

Peroxide of hydrogen alone, when very slightly acidified, is capable of attacking neutral fats, producing therefrom fatty acids under evolution of carbonic acid gas.—After *Compt. Rend.*, 112, 1374.

[*Note by Ed. Am. Drugg.*—The facts above given may be utilized in surgical practice, in which peroxide of hydrogen is at present playing an important part as an antiseptic and disinfectant. The addition of magnesia will, in many cases, not be objectionable; and when it is desired to have the peroxide act rather slowly and gradually, no better method can be employed.]

The Catalogue of the Library of the College of Pharmacy of the City of New York is at present passing through the press, and will be ready for distribution to the members in about six weeks.

LABORATORY SUPPLIES.

In a recent number of the *Journal of Analytical Chemistry* (June, 1891), Mr. David H. Browne published a paper (annotated by G. W. White) giving hints to beginners in iron analysis. This contains some hints useful also to many of our readers. For this reason we reproduce certain portions of the paper, omitting those specially referring to the analysis of iron or iron ore.

It is supposed that a laboratory is to be fitted up in a place removed from the conveniences and comforts of large cities.

Source of Heat.—If coal gas can be had, this is, of course, preferable. When it is not available a small two-burner gasoline stove is used, under a hood. The gasoline tank is placed outside the partition, and connected with the burners by a pipe bent at right angles. The precaution of having the tank on the outside is necessary, since the fumes of evaporating acids would, in a very short time, attack the tin tank and perhaps cause a fire.

Sink.—This should be about eight inches deep and placed near the door. It should be of wood, not metal, as the latter would last only a short time under the corrosion of waste acids, while a wooden sink, made of pine plank, mortised, and screwed together with leaded joints, will last for years.

Water.—If running water can be had, so much the better. It often happens, however, that a pail with a faucet, standing on a shelf above the sink, is the only obtainable substitute.

Distilled Water, sufficiently pure for all ordinary (mine or furnace) analyses, can be obtained from a clean keg set under the steam-escape pipe. If the pipes have been some time in use, and no oil is mingled with the steam, this water is exceedingly pure. For more accurate work, however, this water should be redistilled.

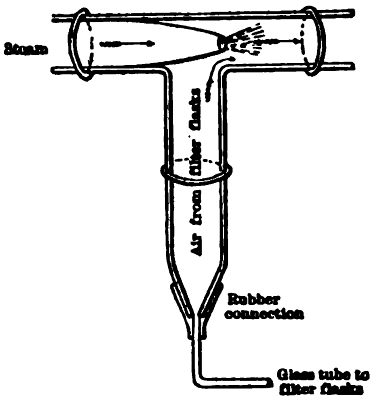

FIG. 1.

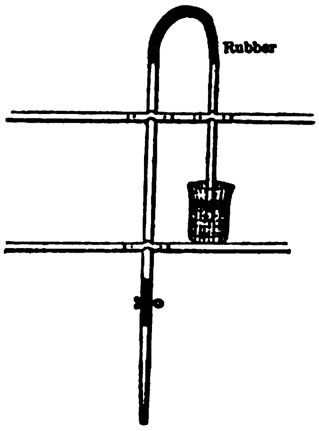

FIG. 2.

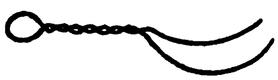

FIG. 3.

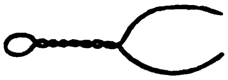

FIG. 4.

FIG. 1.—Filter Pump.
FIG. 2.—Stationary Siphon.

FIG. 3.—Fork for Evaporating Dish.
FIG. 4.—The same seen from above.

Aspirator or Rapid Filter Pump.—A very good steam aspirator, much superior in cheapness and efficacy to any water-pressure pump I have seen in the market, can readily be made at any blacksmith shop. A piece of one-half inch iron pipe is drawn to a tapering point, the opening in which should be about one-eighth of an inch in size.

This pipe is threaded a couple of inches from the point, and screwed into a common branch or T-pipe, to such a distance that the point just barely passes the branch of the T.

By screwing another piece of pipe into the other end of the T, and a smaller piece into the branch, an aspirator is made which, with a very small amount of steam, will give a pressure equivalent to 10 inches of mercury. The construction of the aspirator can readily be seen by the accompanying diagram.

A glass tube leads from this aspirator to a salt-mouth bottle, from which diverging rubber tubes make connection with three filtering flasks. A mercury manometer, easily improvised from a glass tube bent double, and containing a foot or more of mercury in the bend, is connected with the salt-mouth bottle, and by a scale attached serves to show at a glance any variation of pressure.

Automatic Washing of Filters.—A stationary siphon attached to the shelves is often of great convenience in filtrations where pressure cannot be used. The sketch shows an easily adjustable form. By having a foot of rubber tubing forming the connection between the legs, the height of the shorter leg can be varied to suit the filtrate to be siphoned off. This is fixed above the aspirator, and is very quickly started by placing a beaker of distilled water under the shorter leg and connecting the longer with the aspirator till the apparatus is thoroughly washed.

The pinchcock is then closed, leaving the siphon full of water, and the filtrate desired can then be siphoned off.

When the operation is complete, a beaker of distilled water substituted for the filtrate washes out the glass tube and leaves the siphon ready for action again.

Gasoline Lamps for Ignitions.—In regard to gasoline lamps for ignitions and fusions, the most serviceable in the market is that known as the "New Laboratory" lamp, made by the Dangler Stove Mfg. Co., of Cleveland. The flame is rather large, but is under immediate control, as far as heat and volume are concerned. A heat sufficiently high for burning graphite in silicon determinations is readily obtained with this lamp. For ignition of precipitates requiring a smaller flame, the Kellogg gasoline lamp gives a flame which closely resembles that of a Bunsen burner. This lamp is the most satisfactory for the ignition of small precipitates, such as $BaSO_4$ and $Mg_2P_2O_7$.

Glassware.—In selection of glassware and apparatus, it is always necessary to bear in mind the uses for which they are required. Each analysis should be studied, and the reagents and glassware required should be noted.

Haphazard selection from a catalogue of such apparatus as the analyst thinks ought to be bought, without regard to necessity, generally results in the purchase of glassware useful only to encumber the shelves of the laboratory.

Burettes.—For the common analyses two glass-stoppered burettes of 100 C.c. and two of 50 C.c. are required. These should be graduated to $\frac{1}{10}$ C.c.

It is always best to test burettes and make a table of corrections for every 5 or 10 C.c., thus:

Extremes. C.c.	Factor between these extremes.	10 C.c. =	Total value of max. reading.
0—10	0.997	9.97 C.c.	9.97
10—20	1.010	10.10 C.c.	20.07

An operator who thus checks his burettes will find increased confidence in results sufficient to repay the trouble. The best 100-C.c. burettes in the market are about 42 inches long; this length gives ample room for the small graduations to be read.

Burettes of large calibre are a mistake, as the markings are necessarily so close together that accurate reading is out of the question. Floats are, in the majority of cases, a waste of time, as with good burettes accurate reading can be made without them. Trouble is sometimes experienced from leaking or sticking of glass stoppers in burettes. In such cases time and temper are saved by cutting the stopcock off, and attaching a fine-drawn glass point to the end of the burette by a short rubber tube. A small plug of glass rod, to one side of which the rubber can be pinched, forms a valve more efficient and accurate than the glass stopper or pinchcock.

Filters.—The selection of filter papers is an important consideration. The round-cut filters manufactured by Schleicher & Schüll have become very popular, as they are sold in all necessary sizes. The best style made by this firm for general work is known as No. 597. These are especially valuable for pressure filtrations, being very rapid and reliable. The No. 595 filter paper is slightly cheaper, but not so quick working nor as even in grade as the others.

Of the ashless or washed papers, that known as S. & S. No. 589 is most satisfactory. The ash of these can, in most work, be entirely disregarded. Filter paper No. 590 is a little lower in ash, but considerably dearer than 589. Since, however, the ash of a 589 filter of 9 Cm. in diameter is 0.00011 Gm., and that of a 590 paper of the same size is said to be 0.00008 Gm., the analyst can scarcely consider that a decrease of 0.00003 Gm. in ash (a weight beyond the capacity of the average balance to register) is worth the increase of 35 cents a hundred in the cost of the latter papers.

As to sizes of filter papers, the 9 Cm. No. 597 paper is most generally useful. This size is adapted for all such small precipitates as silica, lime, and magnesia in ores, and silica determinations in pig iron; while for alumina and lime in slags, where 1 Gm. is taken for analysis, the 12½-Cm. papers are quite large enough; and for very small precipitates, such as magnesium ammonium phosphate, the 7-Cm. size is required. For final filtration and ignition these sizes of ashless papers will be needed, unless the operator prefers in every case to deduct the weight of filter ash.

Funnels.—In ordering funnels care should be taken to obtain long-stemmed, ground-point funnels of an exact angle of 60°. It is astonishing how few funnels conform to this apparently simple requirement; yet this is absolutely essential for safe and satisfactory use in pressure filtrations.

For 12½ Cm. papers a 2¾-inch funnel is required, while a 9-Cm. filter requires a 2-inch, and a 7-Cm. a 1½-inch funnel. For such large filtrations as removing the zinc iron precipitate in Volhard's method, or for the final filtration of molybdate solution in Emmerton's titration of phosphorus, a 25-Cm. E. & A. German white or a Prat-Dumas paper is necessary. These should be folded, ribbed, and used in a 5¼-inch funnel. At some steel works the gray Prat-Dumas paper is used exclusively for such work, and is very rapid, with the added merit of cheapness.

Platinum Cones.—For pressure filtrations two or three platinum cones, one inch in diameter, will be needed. Spun cones should be used, as the split cones made from platinum foil are liable to get out of angle and tear the paper.

Forks for Evaporating Dishes.—A fork in use at many of the larger laboratories for handling evaporating dishes, is made by bending a piece of heavy telegraph wire into the shape shown in the cut. This fits easily around a dish, and is invaluable where much evaporation is done.

A NEW SHAKING APPARATUS.

O. GUESSEFELD, of Hamburg, describes a new shaking apparatus which may serve a good purpose in many analytical operations, such as the assay of superphosphates, opium, etc.

In a frame, *a* (see cuts on opposite page), consisting of a bottom board with two lateral uprights carrying the axle *c*, there is a crank shaft, *e*, setting in motion the rod *d*, which is itself connected with an arm through which the axle *c* passes. The end of this arm can be made to clamp a flask which has been placed in a holder, *b*. The several parts, *d* and *b*, are shown, in different positions, in the smaller cuts. Rotary motion is produced by means of a grooved pulley, *f*, connected by means of a round belt with a motor. In want of the latter it may be connected with the spindle *g*, to be worked by hand.—*Zeitsch. f. angew. Chem.*.

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Wood Pulp as Absorbent.—For the purpose of rapidly drying filters and various preparations, discs or plates of wood pulp are recommended by Paul Hartmann. These discs may be coated with cellulose, whereby they become smoother. They soak up liquid more readily than plates of clay or gypsum.—After *Zeitsch. f. anal. Chem.*

Methods of Ascertaining the Limits of Impurities in Pharmaceutical Chemicals.*

BY PROF. CHARLES O. CURTMAN, OF ST. LOUIS.

WHEN we wish to employ chemical preparations as reagents for the purpose of detecting the presence or absence of certain chemical elements or compounds, we have to convince ourselves first that they are absolutely free from admixture of even the smallest traces of the substances which we are searching after, or of such as might interfere with the expected reactions. Thus, when we desire to ascertain the presence or absence of arsenic by any of the methods which convert it into arsenetted hydrogen, our sulphuric or hydrochloric acid, as well as our potassium or sodium hydrate, or zinc or aluminium or magnesium, must first of all be proven by the strictest tests to be themselves free from the least trace of arsenic. When we wish to employ sulphuric acid as one of the reagents for the detection of nitrates in potable waters, it is necessary that it be absolutely free from even traces of nitrose (under which name the various oxides of nitrogen are comprised).

Such testing for absolute purity is comparatively easy, and we get, by the use of suitable reagents, at once a definite answer to the question whether the impurity is present or not. It is far otherwise in the case of a number of pharmaceutical chemicals. For when a chemical preparation is intended to serve for medicinal purposes, it is not always required to strictly exclude all impurities. For there are some which, when present in small amount only, cannot possibly do any harm, while their perfect removal from the preparation would materially increase the cost of manufacture. Thus, for instance, not even the greatest stickler for the purity of remedies could reasonably object to the presence of a trace of chloride or sulphate in the acetate of sodium, or to the presence of a trifle of carbonate of magnesium in prepared chalk. Yet while small amounts of impurities derived from the raw materials, which only very troublesome and expensive processes of purification could remove, might be suffered to remain, it would be very injudicious to leave such amount to the option of the manufacturer. Hence the pharmacopœial standards direct in such cases a limit beyond which such admixture with foreign substances may not extend. This permission, however, to let a certain amount of harmless impurities remain in the finished product, while it relieves the manufacturer, makes the task of chemical examination a much more difficult one. For to show absolute purity it suffices to add the reagent, and observe that it produces no result; while in the case of a limited amount of impurities being allowed, we have to show that the impurity indicated by the reagent does not exceed the authorized amount. In other words, mere qualitative examination no longer suffices, and quantitative analysis must be resorted to. The methods adopted to ascertain whether the quantity does or does not come within the prescribed limit should be such that any skilled pharmacist could execute them without great loss of time, and without having at his command the special apparatus and the special experimental training of the professional analyst. Hence the more elaborate quantitative methods should, where possible, be replaced in the Pharmacopœia by those which are at once of sufficient approximation to accuracy, and yet capable of easy and rapid execution. For this purpose two methods appear to be especially adapted. First, the employment of reagents possessing different degrees of sensitiveness for the same substances. Secondly, the addition of a definite proportion of a standardized solution of a reagent, to remove by precipitation a corresponding amount of the suspected impurity up to the limit allowed, and the subsequent testing of the filtrate by an additional amount of the same reagent, when the occurrence of any visible change would indicate the presence of more than the permitted limit of impurity. Each of these methods may prove useful in pharmacopœial testing, and secure results with sufficient accuracy and promptness to answer every purpose.

The better to explain the meaning, a few examples of each method will be given. We may employ for the detection of a certain impurity a reagent whose sensitiveness only extends to a limited percentage, and beyond that fails to give any characteristic indications. This may be due either to the fact that the product of the reaction, being a solid, not quite insoluble, will dissolve in an excessive amount of liquid and cease to be visible, or the reaction may fail to take place entirely or be delayed for some length of time. When such a reagent indicates the presence of an impurity at all, it also shows that the quantity of this impurity either equals or exceeds that which is required to produce a visible change. Sometimes we have different reagents for the same substance, which vary in degree or delicacy, and may be employed to show the presence of different quantities.

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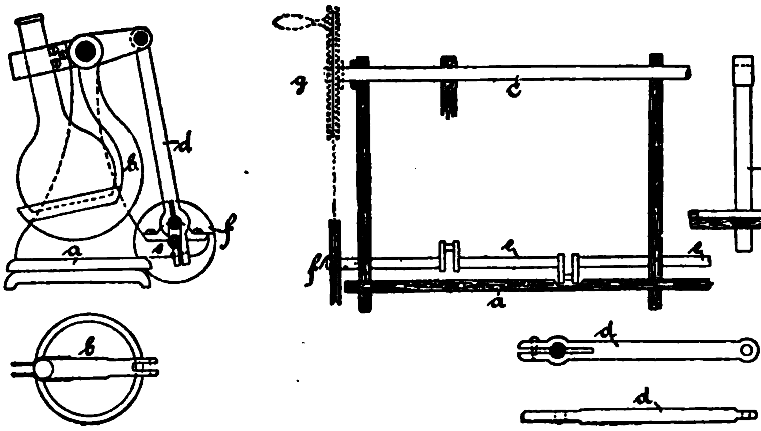
* Paper read at the annual meeting of the Missouri Pharmaceutical Association.

Thus we may precipitate potassium salts by an excess of tartaric acid, when crystalline bitartrate of potassium will form. But if the amount of potassium be less than one-tenth of 1 per cent of the solution containing it, no precipitate is formed, as there is liquid enough to keep the bitartrate of potassium in solution, and the limit of the reaction is therefore reached. An addition of a concentrated solution of platinic chloride, which is capable of detecting about one-twelfth of 1 per cent of potassium in watery solution, would prove a slightly more sensitive reagent than tartaric acid. But when dilution goes still beyond this proportion, so that both tartaric acid and platinic chloride have failed, we possess in the sodium-cobaltic nitrite a still more delicate reagent, which will promptly form a copious yellow precipitate in an aqueous solution — one-twentieth of 1 per cent of potassium. In even greater dilutions precipitates are formed more slowly, until they cease to distinctly form. The potassium amounts to less than one-thirtieth of 1 per cent. In cases where the addition of alcohol is not objectionable, all three of the reagents produce precipitates with still smaller amounts of potassium, as they are less soluble in dilute alcohol than in water. By employing one or the other of these reagents we have, therefore, means of grading the limit of potassium occurring as an impurity in the salts of other bases.



Guessefeld's Shaking Apparatus (see page 232).

In a similar manner we may mention reagents which show the presence of arsenic with a different degree of delicacy. Thus Bettendorff's test with stannous chloride fails to give satisfactory evidence when much less than 0.1 Mgm. of arsenic trioxide is contained in 1 C.c. of the solution. So that chemicals in which the presence of so small a percentage of arsenic is not objectionable may be tested by this method and rejected when the reaction occurs, but deemed sufficiently pure for medical use when there is no brown color produced by the reagent. Ammoniacal silver nitrate in Hume's test will go much further, and gives a fairly perceptible reaction (a yellow precipitate) in a solution containing only 0.02 Mgm. of arsenic trioxide in 1 C.c. Hydrogen sulphide gas passed through the acidulated solution will detect 0.01 Mgm. Gutzeit's modification of Marsh's test gives an unmistakable reaction with 0.001 Mgm. of arsenic in 1 C.c. of solution, and even enables us by very careful attention to recognize 0.0001 Mgm. Hence when, as is the case with most of the pharmaceutical chemicals, a percentage of arsenic as small as one-tenth Mgm. in 1 C.c. of a solution containing 1 Dgm. of the substance to be tested, or 1 part in 100,000 parts (less than 1 grain in 200 ounces), is not objectionable, a negative result with stannous chloride suffices to mark the limit of the impurity. When, however, absolute purity is demanded, as is the case with most reagents, we must show that even the delicate test of Gutzeit will fail to show any reaction.

In a similar manner ferrocyanide of potassium (the yellow prussiate) may serve as a reagent which will detect iron within certain limits. With ferric salts in neutral or acidulated solutions, the reagent will produce a blue precipitate of such intensity of color that even very minute amounts can be recognized. But when the dilution becomes too great, the blue compound (Prussian blue) is not seen at once, but requires some time for its formation, especially if only a small amount of the test solution be added. Hence a very minute amount of iron, such as may be allowed as a limit, will not produce the blue color within less than fifteen minutes, if only one-half cubic centimeter or less of the ferrocyanide test solution is added. A chemical showing the reaction in a shorter time must contain a greater percentage of iron than is admissible, and should be rejected.

The second method of ascertaining whether a given limit of impurity is exceeded or not is still more generally applicable than the first, of which the testing for potassium and for arsenic has been cited as examples. In testing chemicals for impurities—such as, for instance, the presence of chlorides or sulphates in salts, which should contain them only in minute quantities, or not at all—the direction generally reads that, on addition of silver nitrate, no more than "a faint opalescence" or "a slight turbidity" should appear; or that the addition of barium chloride should produce only "a light cloudiness" or a "scant precipitate," etc. All of which appearances, being somewhat difficult of exact grading of intensity, leave a considerable scope of uncertainty in the decision whether a certain chemical comes just within the limit of permitted impurity, or exceeds it to a greater or less extent. Instead of this vagueness of estimation it would be far better to settle on a definite percentage of impurity to be allowed, and then ascertain that the amount is not exceeded by adding the exact quantity of a reagent required to remove such percentage of impurity by precipitation. After filtration, no more visible change should then be produced by an additional amount of the reagent. Thus we will assume that the presence of one-half of 1 per cent of sodium chloride be the limit of that impurity permitted in acetate of sodium. To find out whether a certain specimen conforms to this demand, we dissolve 0.584 Gm. of the acetate in 10 C.c. of water, and add to it a few drops of nitric acid, and then 0.5 C.c. of the decinormal solution of silver nitrate. If no precipitate, turbidity, cloudiness, or opalescence appear, we need go no further, for the entire absence of chloride is proven. But if a precipitate does occur, we shake the solution vigorously to collect the precipitate into coherent flakes, and then filter. The amount of silver nitrate added is sufficient to precipitate exactly 2.92 Mgm. of sodium chloride, amounting to one-half of 1 per cent of the 0.584 Gm. of sodium acetate tested. Hence, one-half of 1 per cent, or any quantity less than that, of sodium chloride would be removed from the solution, and a preparation containing no more impurity would yield a filtrate in which no subsequent addition of silver nitrate could produce any visible change. Should such a change occur in the filtrate, from our specimen, on the addition of silver nitrate, it would be evidence of the presence of a larger amount of impurity than the limit allowed, and the preparation must be rejected.

In like manner a definite amount, say one-half of 1 per cent, of sulphate may be precipitated, if we add 0.1 C.c. of normal barium chloride volumetric solution to 1.42 Gm. of sodium acetate dissolved in a mixture of 25 C.c. of water with 5 C.c. of hydrochloric acid. The presence of the acid renders the precipitated barium sulphate more granular, so as not to pass through the filter; in the filtrate no further change should be perceived on addition of more barium chloride solution. In selecting sodium acetate and assuming a limit of one-half of 1 per cent of either impurity to be admissible, the writer does not wish to imply that the presence of a somewhat larger amount could not be allowed without producing serious results, but simply desires to exemplify in this salt the method of a prompt testing; for a correct limitation of impurities is quite definite, leaving no room for uncertainty in the estimation of the greater or less amount of cloudiness or turbidity. Yet it can be easily accomplished by any one possessed of ordinary skill in pharmaceutical manipulation, without demanding either special training in analytical work or complicated apparatus.

The quantities of any salt to be tested for a certain percentage of impurity are easily ascertained, and are of equal amount for any salt of the same base, no matter with what acid it may be combined, for the same number of cubic centimeters of the reagent employed to precipitate a certain impurity.

In the case of chlorides we find that 1 C.c. of decinormal solution of silver nitrate precipitates:

0.00744 Gm. of potassium chloride.
0.00584 Gm. of sodium chloride.
0.00554 Gm. of calcium chloride.
0.00534 Gm. of ammonium chloride.
0.00424 Gm. of lithium chloride.

Hence, to precipitate by 1 C.c. of the silver solution 1 per cent of chloride, in the salts of the above bases, there must be used:

0.744 Gm. of any potassium salt.
0.584 Gm. of any sodium salt.
0.554 Gm. of any calcium salt.
0.534 Gm. of any ammonium salt.
0.424 Gm. of any lithium salt.

If we wish to precipitate one-half of 1 per cent of chloride, we must either take only 0.5 C.c. of the silver solution, or use double the quantity of the salt to be tested, and so on for any different percentage we desire to adopt.

In the same manner we calculate the proportions for the precipitation of sulphates by barium chloride. As this reagent is generally used in normal solution, which is tenfold more concentrated than the decinormal solution, 0.1 C.c. corresponds in strength to 1 C.c. of decinormal solution; 0.1 C.c. of normal barium chloride (containing 103.7 Gm. of $BaCl_2$, or 121.7 Gm. of the crystallized salt, $BaCl_2+2HO$, in 1 liter) precipitates:

0.0087 Gm. of potassium sulphate.
0.0071 Gm. of sodium sulphate.
0.0068 Gm. of calcium sulphate.
0.0066 Gm. of ammonium sulphate.
0.0055 Gm. of lithium sulphate.

Hence, to precipitate, by means of 0.1 C.c. of normal barium chloride, 1 per cent of sulphate, the following quantities of the salts of the above bases must be used:

0.87 Gm. of any potassium salt.
0.71 Gm. of any sodium salt.
0.68 Gm. of any calcium salt.
0.66 Gm. of any ammonium salt.
0.55 Gm. of any lithium salt.

For more or less than 1 per cent, less or more in proportion of these quantities must be used—double the quantity for one-half of 1 per cent, four times the quantity for one-quarter of 1 per cent, etc.

In a similar manner we can use lime water for the precipitation of carbonate in caustic potassa or soda. After boiling a certain number of cubic centimeters of the lime water with solution of a definite weight of potassium or sodium hydrate, until the amount of calcium carbonate, formed from the alkaline carbonate and the lime water, is separated in granular form, we filter. In the clear filtrate acids no longer cause any effervescence, if the amount of carbonate was within the limits allowed. The method is sufficiently accurate for approximation only, for the lime water, when saturated near 15° C. (59° F.), is very nearly $\frac{1}{25}$ of the strength of normal solutions, but at higher temperatures becomes weaker, by depositing calcium hydrate, which is much more soluble in cold than in warm water. The new German Pharmacopœia adopts this method for limiting the amount of carbonate in caustic potassa, and it is applicable to other preparations as well.

Modifications of the processes here described will serve for ascertaining whether the limit of impurity permitted by the Pharmacopœia is exceeded or not in many other preparations, *e.g.*, for magnesium in calcium salts, for calcium in the salts of sodium or potassium, etc. It is to be hoped that greater certainty in results, combined with great facility in execution, will make testing of the chemicals purchased more general among the members of the profession.

Ointment for Hæmorrhoids.

℞.	Hydrochlorate of Cocaine	gr. xvi.
	Sulphate of Morphine	gr. v.
	Sulphate of Atropine	gr. iv.
	Powdered Tannin	gr. xvi.
	Petrolatum	℥ i.
	Essence of Rose	q. s.

Make an ointment and apply to the affected parts after each movement from the bowels. It is necessary that the discharges be of soft consistence.—*Journ. Amer. Med. Assoc.* [It appears to us that the proportion of atropine is too large to be safe.—Ed. American Druggist.]

Muawine, a New Alkaloid.—Muawine is the name given to an alkaloid contained in the muawi tree, which is found in Mozambique. The rind of the tree is supposed to possess similar tonic proprieties to the sassy bark (*Erythrophlœum guineense*), but is quicker and more powerful in its action. The free alkaloid is amorphous and syrup-like, readily soluble in alcohol, ether, and chloroform, and closely resembling erythrophlœine. None of the salts have been obtained in a crystalline condition. The hydrobromide is a white powder, soluble in water, alcohol, and chloroform. The physiological action of muawine is similar to, but not identical with, that of erythrophlœine.

Unalterable ("Excel") Milk.—It will be of general interest to learn that there is a process, already in successful operation, by which cow's milk is perfectly preserved for almost any length of time. Of course, it depends upon its being absolutely sterilized, and kept so that access of bacteria or germs is absolutely prevented. The process appears to have been in successful operation for some years, though it does not seem to have attracted attention in public. There is no doubt that it will soon be worked in this country. A brief account of it has recently been given by the editor of the *Chemist and Druggist.*

It is the process of Messrs. Neuhauss, Gronwald & Oehlmann, of Berlin, which is employed, and the bottle is part of the scheme. This is a shoulderless bottle fitted with a porcelain and rubber stopper, which is attached to the neck of the bottle by two wires so bent that when the lower one is pressed down it pulls the stopper "home" and keeps it perfectly air- and water-tight. In sterilizing milk, the bottles are filled, placed in wire baskets and then in a chamber where jets of steam bring the temperature up to blood heat. The baskets are now transferred to a large square copper which has a lid that fits securely to it. This is lowered, clamped, and steam turned on, and in a few minutes a thermometer indicates 100° C. as the temperature of the contents of the bottles. At this it is kept for twenty-five minutes, which experience has proved to be more than enough to completely sterilize the milk.

Steam is cut off now, and by an ingenious arrangement a number of cross-bars within the lid of the copper are actuated from the outside so as to press down the springs of the stoppers, so that the bottles are closed before the copper is opened. It will be seen, therefore, that there is no possibility for any microbic life to survive the steaming, nor can a germ get into the milk again until it reaches the consumer and the bottle is opened.

Milk for steamers is also sterilized in tin vessels, from which it is run into sterilized cans after the prescribed time. Even in these cans the milk keeps its sweetness for many months.

SOXHLET'S NEW IMPROVED DRYING OVEN.

Every drying oven so far constructed is affected with material drawbacks, chief among which are: irregularity of temperature in different parts of it; inefficiency of air as a conductor of heat; and insufficient draught.

Prof. Soxhlet has succeeded in devising an apparatus in which these defects are very materially reduced, so much so that the determination of milk solids, which heretofore consumed (with the Adams coil) from three to four hours, has been reduced to twenty minutes.

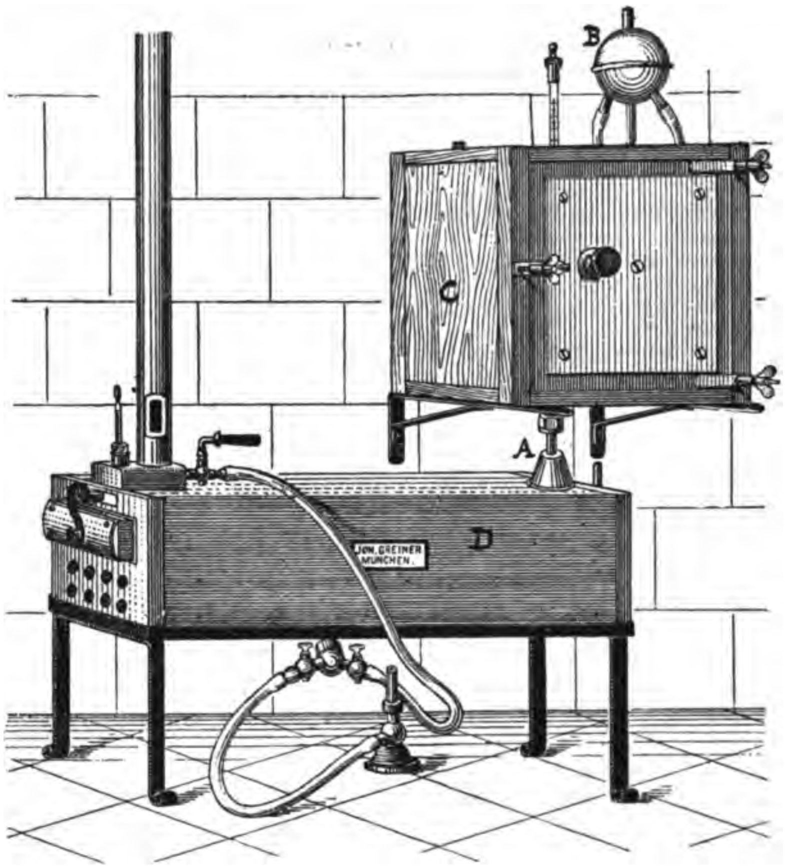


Fig. 1.
Soxhlet's Improved Drying Oven.

Moreover, the attainment of absolute dryness (constant weight), in the case of numerous substances, can, with the new apparatus, be ascertained by mere inspection, and it is even feasible to have this point indicated by an alarm.

The drying *space* (in the oven) is 47 Cm. (18½ inches) long, 9.5 Cm. (3¾ inches) wide, and only 3 Cm. (1$\frac{3}{16}$ inches) high. At all sides, except the small door, it is surrounded by a boiling solution of common salt. In the lower part of the outer box (containing the solution) are 8 brass tubes of 15 Mm. (about ⅝ of an inch) diameter, which convey air from the outside to the drying space proper (see Fig. 2). The only place which is not touched by the boiling solution is the small door, a piece of wood covered with felt, held in place by a feathering spring. Immediately behind this door, a short tube, 40 Mm. (1½ inches) in diameter, is soldered into the upper walls of the box, communicating with the interior. This serves as draught chimney, and may be rendered still more effective as such by lighting a small gas flame contained in it, a mica-glazed door being provided for lighting the flame and watching its size. By means of this arrangement, about 10 cubic meters of air, heated to the temperature of the boiling salt solution, are drawn every hour through the oven. At the same time the draught is so gentle that even the lightest powder, when dry, will not be disturbed. A special box or case is attached in front of the chimney for the insertion of a thermometer, which need or should not reach more than a few millimeters down into the drying space. The flame in the chimney should be about 5 Cm. (2 inches) high. In order to maintain a uniform concentration of the salt solution, a globular condenser is attached to the other end of the surface of the apparatus [in Fig. 1 this globular condenser, B, is supposed to be at A; why it is transferred to an additional apparatus, as shown in the cut, will appear further on], and a glass gauge shows the level of the solution. When charging the apparatus, a cold-saturated solution of common salt, which boils at 107° C., is poured in to a mark attached at the rear wall, behind the glass gauge. As source of heat, an ordinary Bunsen burner may be used. Care must be taken that the globular condenser is properly fed with cold water, which may be from a regular water service, by means of rubber tubing attached to the projecting necks, and the glass gauge must be from time to time inspected.

The best-shaped vessels for drying substances in this apparatus are flat-bottomed nickel or glass capsules of 9 Cm. (3½ inches) diameter and 10 Mm. (⅜ inch) height. During weighing the glass capsule is covered with a glass plate, and the nickel capsule with a nickel cover, the margin of the cover being turned down. In nickel vessels drying proceeds more rapidly, and they are, moreover, preferable on account of their lighter weight. A small, long-armed shovel is used for introducing or removing them.

Instead of attaching the globular condenser to the drying oven, the latter may be further connected with a double-walled drying box of the kind so universally in use, and the condenser then attached to the latter. This affords an additional drying space, suitable for drying filters, extraction flasks, etc., the temperature in it being quite uniformly about 94° to 95° C.

When it is desired to cool off a capsule very rapidly, this may be accomplished by artificial cooling. To prevent access of moist air, the capsule is covered with a soft rubber plate weighted down by a glass plate. It is then placed on a cold metallic block, where it will cool rapidly. Or it may be put on the ring of a retort stand, and a fine spray of ether played upon its bottom. After being wiped it may be weighed, and no material error will be committed.

The proportions and dimensions given above for the shape and size of the apparatus are those which have been found to be the most advantageous in practice. Prof. Soxhlet has used it exclusively for two years, and has found it preferable even to a vacuum drying apparatus.

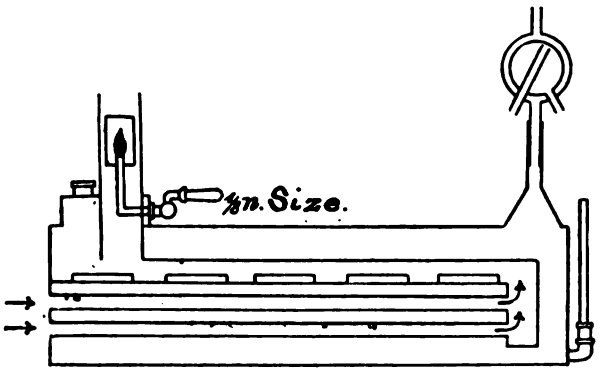


Fig. 2.

As long as there are moist vapors given off by any substance introduced for drying, the highest temperature which the thermometer would very uniformly show, if the drying space were empty, is not fully reached.

The introduction of a moist substance depresses the temperature, and the latter returns to its normal high stand only when the substance is dry. It is, therefore, easy to judge of the progress of drying by watching the thermometer. The following example is quoted by Prof. Soxhlet to show the progress of drying:

Five capsules, each containing 7 Gm. of powdered pumice and 5 C.c. of milk, were placed in the drying chamber and the door immediately closed. The thermometer then indicated the following successive temperatures:

After 3 minutes	94° C.
" 6 "	95° C.
" 8 "	96.2° C.
" 10 "	97.2° C.
" 12 "	100° C.
" 14 "	101.3° C.
" 15 "	102° C.
" 16 "	102.4° C.
" 17 "	102.8° C.
" 18 "	103° C.

After the temperature of 103° C. had been attained, which was the highest at which the oven had stood while it contained the empty capsules, the five samples were taken out, cooled in the exsiccator, and weighed. They were then again dried for another hour, and again weighed. The difference was not more than a plus or minus of a fraction of a milligramme.

Many other experiments have proven that when the highest point of temperature has been attained the substance has become perfectly desiccated.

By inserting a so-called contact thermometer—with adjustable electric contact—instead of a common one, and connecting an electric alarm with it, the proper moment when a state of dryness has been attained may be announced, thus doing away with the necessity of watching the apparatus.

The manufacturer of the apparatus is Johannes Greiner, of Munich. It may be procured through any of the importers of chemical apparatus (see advertising columns).

A Chemical Fire Alarm.

A NEW fire alarm now in use in Sweden consists of a small copper cartridge closed by an india-rubber button and filled with a fire composition. The fuse contains a mixture of potassium chlorate and sugar, and on it is placed a paraffin capsule containing a few drops of sulphuric acid. When the temperature of the room rises above the melting point of paraffin the sulphuric acid is liberated and ignites the chlorate mixture, which in its turn sets fire to the Bengal light.

A fusible metal disc, placed in contact with the mixture, will also be melted, and thus make electrical connection with a call bell so as to sound the alarm at a distance.

How to Loosen Glass Stoppers.

THE *Pottery and Glassware Rep.* states that some one of the following methods is certain to prove effective:

1. Hold the bottle or decanter firmly in the hand or between the knees, and gently tap the stopper on alternate sides, using for the purpose a small piece of wood, and directing the strokes upward.

2. Plunge the neck of the vessel in hot water, taking care that the water is not hot enough to split the glass. If the stopper is still fixed, use the first method.

3. Pass a piece of lint around the neck of the bottle, which must be held fast while two persons draw the lint backward and forward.

4. Warm the neck of the vessel before the fire, and when it is nearly hot the stopper can be removed.

5. Put a few drops of oil around the stopper where it enters the glass vessel, which may then be warmed before the fire. Then apply process No. 1. If the stopper still continues immovable, repeat the above process until it gives way, which it is almost sure to do in the end.

6. Take a steel pin or needle and run it round the top of the stopper in the angle formed by it and the bottle. Then hold the vessel in your left hand and give it a steady twist toward you with the right, and it will very soon be effectual. If this does not succeed, try process No. 5, which will be facilitated by it.

On "Patent," Medicines.

THE following is taken from a paper by Dr. John S. Billings, prepared for the celebration of the centennial of the American patent system:

The application of the patent system to medicine in this country has had its advantages for certain people, has given employment to a considerable amount of capital in production (and to a much larger amount in advertising), has contributed materially to the revenues of the Government, and has made a great deal of work for the medical profession.

So far as I know, but one complete system of medicine has been patented in this country, and that was the steam, cayenne pepper, and lobelia system—commonly known as *Thomsonianism*—to which a patent was granted in 1836. The right to practise this system, with a book describing the methods, was sold by the patentee for twenty dollars, and perhaps some of you may have some reminiscences of it connected with your boyish days. I am certain I shall never forget the effects of "Composition Powder," or of "Number Six," which was essentially a concentrated tincture of cayenne pepper, and one dose of which was enough to make a boy willing to go to school for a month.

From a report made by the Commissioner of Patents in 1849, it appears that eighty-six patents for medicine had been granted to that date; for the specifications of most of those issued before 1836 had been lost by fire. The greater number of patents for medicines were issued between 1850 and 1860.

The total number of patents granted for medicines during the last decade (1880–1890) is 540. This, however, applies only to "patent medicines," properly so-called, the claims for which are, for the most part, presented by simple-minded men who know very little of the ways of the world. A patent requires a full and unreserved disclosure of the recipe, and the mode of compounding the same, for the public benefit when the term of the patent shall have expired; and the Commissioner of Patents may, if he chooses, require the applicant to furnish specimens of the composition and of its ingredients, sufficient in quantity for the purpose of experiment. The law, however, does not require the applicant to furnish patients to be experimented on, and this may be the reason why the Commissioner has never demanded samples of the ingredients. By far the greater number of owners of panaceas and nostrums are too shrewd to thus publish their secrets, for they can attain their purpose much better under the law for registering trade marks and labels, designs for bottles and packages, and copyrights of printed matter, which are less costly and do not reveal the arcanum.

These proprietary medicines constitute the great bulk of what the public call "patent medicines."

The trade in patent and secret remedies has been, and still is, an important one. We are a bitters- and pill-taking people. In the fried-pork and saleratus-biscuit regions the demand for such medicines is unfailing, but everywhere they are found.

I suppose the chief consumption of them is by women and children, with a fair allowance of clergymen, if we may judge from the printed testimonials. I sampled a good many of them myself when I was a boy. Of course, these remarks do not apply to bitters. One of the latest patents is for a device to wash pills rapidly down the throat.

I am sorry to say that I have been unable to obtain definite information as to the direct benefits which inventions of this kind have conferred on the public in the way of cure of disease or preventing death. Among the questions which were not put in the schedules of the last census were the following, namely: "Did you ever take any patent or proprietary medicine?" "If so, what and how much, and what was the result?"

Some very remarkable statistics would no doubt have been obtained had this inquiry been made.

I can only say that I know of but four secret remedies which have been really valuable additions to the resources of practical medicine, and the composition of all these is now known.

These four are all powerful and dangerous, and should only be used on the advice of a skilled physician.

Crystallisation and Crystallizing Media.

When organic proximate principles are to be obtained in a crystalline form, they are either dissolved in the hot menstruum to saturation, so that the dissolved substance crystallizes out on cooling, or the solution is allowed to evaporate spontaneously. Besides these two methods, sublimation is also used for obtaining crystals. These three are the methods most generally employed for organic compounds.

Among the solvents or menstrua more commonly used are the following: Water, hydrochloric acid (nitric acid), sulphuric acid. Acetone, ether, alcohol and its homologues (amyl alcohol, etc.); also methyl alcohol. Also mixtures of alcohol and water in various proportions. Aniline (also ammonia). Benzol and its homologues. Toluol, xylol, cumol, and chloroform. Glacial and common acetic acid, acetic ether. Petroleum ether, phenol. Carbon disulphide.

In some special cases the following have been employed: Hydrochloric acid, glycerin, creosol, naphthalin, nitrobenzol, petroleum, phosphorus oxychloride, pyridine, turpentine, spermaceti.

Regarding the best methods of using some of these solvents as crystallizing media, a few practical hints may be given here.

Water.—If water is used for recrystallizing substances affected by the air—for instance, such as become colored by exposure to it (as is the case with many amines)—a little carbon disulphide or sulphurous acid is added to the water.

Hot Hydrochloric Acid is very useful when the object is to leave behind resinous matters, which it does not dissolve. Thus, when paranitrophenol is to be separated from the accompanying resins, this solvent is used.

Ether sometimes, though very rarely, forms a constituent of crystals. Thus, pseudo-leucaniline was obtained by Fischer and Ziegler in crystals containing ether.

When ethereal solutions are to be evaporated so as to obtain the dissolved substance in crystals, it is advisable to treat the solution first with chloride of calcium, in order to remove the moisture or water which will adhere to the crystals after the ether has evaporated.

Alcohol.—Graham was the first who observed that alcohol could be a constituent of a crystal. And Hesse seems to have discovered the only substance—viz., conchairamine, an alkaloid of cinchona bark—which contains both water and alcohol when crystallized ($C_{22}H_{26}N_2O_4.H_2O.C_2H_6O$).

Benzol is also capable of forming a constituent of crystals; sometimes it is so firmly combined that it requires protracted heating at over 100° C. to dissipate it.

Chloroform behaves similarly. Thus, the triazin of benzol ($C_{27}H_{18}N_6$) crystallizes with 1 molecule of chloroform, the alkaloid colchicine with 2 molecules, etc.

Glacial and Ordinary Acetic Acids.—If these have been used as solvents and crystallizing media, the crystals are freed from the adhering liquid either by allowing the latter to evaporate over caustic potassa in a desiccator (without rarefying the air), or by drying them in a current of air at 100° C. or over soda-lime in vacuo.

Naphthalin has once served a good purpose. Witt could not obtain one of the varieties of naphthazin in a crystalline form by using any of the methods then known. He finally succeeded by dissolving the substance in boiling naphthalin, allowing to cool slowly, and then boiling the solid mass repeatedly with alcohol, which gradually dissolved the naphthalin, but left the naphthazin behind in form of crystals.

Petroleum-Ether.—The most serviceable is that which boils at 60° to 70° C. on a water bath.

Phenol is an excellent solvent for many substances. By means of it Witt succeeded in crystallizing eurhodol, which is insoluble in *all* other known solvents. He dissolved the hydrochlorate of eurhodol in hot phenol, then cooled to 100° C., and added boiling alcohol to which a little aniline had been added. The aniline combined with the hydrochloric acid, and the eurhodol then crystallized in needles.

"*Salting out.*"—In many cases a substance may be caused to separate from an aqueous solution by dissolving in the latter certain substances which throw the other out of solution. Such substances are chloride or sulphate of sodium, potassium carbonate, etc. Thus, alcohol may be separated from water by saturating the mixture with potassium carbonate. The alcohol will then form a layer on top of the aqueous solution.

In the case of alcoholic solutions, addition of water will often effect this. [Of course, not every substance thus separated can exist in a crystalline form.]

Ethereal solutions are cautiously treated with petroleum-ether until the mixture begins to look turbid. The substance will then soon begin to separate.

In the same manner bodies may be thrown out of solution in other cases, for instance, by adding alcohol to phenol solutions, etc.—Lassar-Cohn in *Arbeitsmethoden f. organ.-chem. Laboratorien.*

Pepsin Unaffected by Boric Acid.

In view of the extending use of boric acid and several of its compounds for the preservation of food, precise information as to its action upon the animal body is exceedingly desirable.

While Leffman and Beam (*Analyst*, xiii., 103) have found that boric acid has practically no influence on the diastasic action of malt extract, and, presumably, also upon that of the saliva, Gorup-Besanez ("Lehrbuch d. physiol. Chemie," p. 45), a high authority, states that a solution of borax, whilst without influence upon organized ferments, renders non-organized ones inactive.

In order to put these conflicting statements to the test, as regards pepsin, I charged twelve [13?] bottles each with 50 Gm. of hard-boiled white of egg which had been rubbed through a very fine sieve, added 250 C.c. of water containing 0.15 per cent of hydrochloric acid, and 0.34 Gm. of pepsin which had been previously ascertained to be capable of completely dissolving 2,500 times its weight of albumen in about five hours at a temperature of 40° C.; 0.033 Gm. of pepsin was, therefore, capable of dissolving completely 82.5 Gm. of albumen.

To bottle No. 1 no further addition was made; to the other eleven [12] the following quantities of pure boric acid were added: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.8, 1.0, 1.5, 2.0, 2.5, and 3.0 Gm. All the bottles were then plunged into a water bath and kept at a temperature of 40° C., with frequent shaking. The albumen dissolved equally well in the whole of the bottles, and after about five hours solution was complete in all the samples. There was no difference whatever between the action of pure pepsin and that charged with as much as 3 Gm. of boric acid. I conclude that boric acid, even in the amounts used, has no retarding influence upon peptic digestion.—Otto Hehner in *The Analyst*, 1891, 126.

Bromide of Bismuth.

This salt has several times been experimented with by physicians of our acquaintance. Small quantities of it were prepared for their use by allowing powdered bismuth and bromine to act together in presence of a little water, driving off the excess of bromine by a current of air, and subliming, or rather distilling, the residue.

Victor Meyer has recently published a note on this compound (*Annalen*, 264, 122). He prepared it by gradually adding *finely* powdered bismuth to bromine contained in a retort. The combination of the two elements takes place slowly, several days being required, at the ordinary temperature, to complete the reaction. The mixture is then distilled, bromine and bromide of bismuth passing over, and a considerable amount of bismuth remaining behind. The latter is again powdered and treated in the same manner. To obtain the bismuth bromide pure, it must be distilled several times. It is finally obtained as a handsome orange-red mass, of a radiately-crystalline or grapelike form. It can be boiled, without decomposition, for many hours, in a flask provided with an upright condenser. Its vapor is deep-red, very much like that of sulphur or phosphorus sulphide.

◆

In poisoning, if the patient is unruly (says the *Dixie Doctor*) don't waste time. Throw $\frac{1}{10}$ to $\frac{1}{5}$ grain apomorphia under the skin, and then watch patient vomit freely, fully, remorselessly, and from his boots up.

Quinethyline, a Homologue of Quinine.

MESSRS. E. GRIMAUX and A. ARNAUD recently announced that they had succeeded in converting cupreine (the alkaloid obtained from cuprea bark) into a homologue of quinine. While this has no immediate practical bearing upon the successful working of a process for making synthetic quinine, yet any step in the direction of recognizing the true constitution of quinine is of importance. We have just received (in *Compt. Rend.* of June 15th) a further contribution by the same authors on this subject.

Their first task was to prepare cupreine absolutely free from quinine. This was accomplished by extracting the latter with ether, or, better still, with chloroform, in either of which the cupreine is much less soluble than quinine.

The pure cupreine can be converted into the new alkaloid by treating sodium-cupreine either with chloride or bromide of ethyl, at a temperature of 120° to 130° C., or else with ethyl nitrate. The result is an ethyl sulphate of the new alkaloid, $C_{19}H_{21}N_2O$, which may be regarded as a sulphate of a compound of the new alkaloid with the unsaturated remainder C_2H_5O, viz., $C_{19}H_{21}N_2O.OC_2H_5$ or $C_{21}H_{26}N_2O_2$. This new body is a white, amorphous substance much resembling quinine, capable of forming a crystalline hydrate, polarizing to the left, and forming both a basic and a neutral sulphate.—After *Compt. Rend.*

Hints about Perfumes.

IT is well known that the addition of fresh milk to an alcoholic solution of essential oils, up to a point when the latter are just beginning to separate, is an excellent way to make the odor of the finished preparation more lasting, there being just sufficient butter fat introduced to "hold" the aroma for some time after the alcohol has evaporated.

An expert has recently informed us that the best effects are produced by using *hot* milk. Moreover, it is necessary to ascertain just how much milk is required to reach the point when the oils are *beginning* to separate, since it would be a waste of money to cause the separation and loss of more than a very small proportion.

The proper way to proceed is as follows: When the alcoholic solution of oils is completed, remove a small, exactly measured quantity, say 1 fluidounce. Now add to it, from a measured quantity of water, in a small graduate or burette, small portions at a time, towards the end in drops, until the mixture is distinctly opalescent, without showing oily drops either on the surface or at the bottom after standing about one hour. The next point is to ascertain how much milk will have to be taken to equal the amount of water that has been found necessary. Now, cow's milk contains about 88 per cent of water. That is, if we wanted to add to some other liquid 88 parts of water in the form of milk, we would have to take 100 parts of the latter. Assuming that we have found, by experiment, that we require 15 minims of water to render the alcoholic solution opalescent, we would find the equivalent quantity of milk by multiplying 15 with the modulus 1.055. This is obtained thus: One fluidounce of milk, at about 60° F., and of the specific gravity 1.030, weighs about 470 grains. The latter consist of about 433.6 grains of water (88 per cent) and 36.4 grains (12 per cent) of solids. But the 433.6 grains of water equal 455 minims. That is to say, every fluidounce of the milk contains 455 minims of water. We have, therefore, the proportion:

$$455 : 480 : : 15 : x$$

$$x = 15 \times \frac{480}{455}$$

$$x = 15 \times 1.055$$

In this special case, then, x would be 15.825, or practically 16 minims. But the same modulus will hold good for any denomination of measure. The rule then would be, multiply the number of minims, or fluidounces, or pints, etc., of water found required by experiment, with 1.055, and the result will be the corresponding number of imnims, fluidounces, pints, etc., of milk required.

If it is desired to *weigh* the milk, after determining the water by *measure*, it is only necessary to multiply the number of minims, fluidounces, pints, etc., by the modulus 1.033, which is found in a similar manner to that previously developed.

Japanese Lacquer.

THE material for the Japanese "lacquer" industry is obtained from the lacquer tree, *Rhus vernicifera* DC. (Japanese, *urushi-no-ki*), which is cultivated in China and Japan, and usually attains a height of from 24 to 30 feet, with a circumference often exceeding 3 feet.

Lacquer is obtained by making incisions in the tree, usually when it has attained the age of about ten years. The best time for obtaining lacquer is the middle of summer, as at this time both the quantity and the quality of the juice are most satisfactory. Almost all the workmen engaged in collecting lacquer are from the Province Echizen, the inhabitants of which are in the habit of hiring out for certain parts of the year. The large operators in lacquer purchase from the peasants owning the lacquer districts a certain number of trees, which are then turned over to the workmen, each of whom has usually assigned to him one thousand young trees or between six to eight hundred older ones, which occupy his time during the whole summer.

The price of the trees at the present time is about $70 to $90 per hundred. The first operation of the workman is to strip the stems of the trees of dead bark and adhering moss. Next he makes an incision at the lower end of the stem by means of a specially formed knife, in a horizontal direction, the incision being about 2 Mm. wide, semi-circular, and passing through bark and bast. Next he cleans this circular cut by means of the pointed end of his knife, in order to remove bark, chips, etc.; then he makes similar incisions alternately on opposite sides of the stem at intervals of about 4 inches, as high up as he can reach. In this way he goes from one tree to the other, treating them in the same manner. After ten or fifteen trees have thus been provided with incisions, he returns to the first one and collects the exuded juice by scratching it out from the cut.

This juice appears in the form of a grayish-white, viscous mass, which exudes very slowly, turns rapidly yellowish-brown by exposure to the air, and afterwards turns black.

After the lacquer has been carefully removed and transferred to a little vessel which the operator carries in his left hand, he goes to the next group of trees, which he treats in the same manner.

It requires five or six days for him to return to the first group, when he makes new incisions somewhat deeper than the first, which are then cleared of exudation in the same manner. Since this operation is repeated usually from ten to twenty times on each tree, it follows that the workman requires eighty to one hundred days to get through with his work. In many cases the trees are not intended to be saved, hence in these cases the branches are incised in a similar manner, the tree is finally felled, and the last remnant of the juice extracted by means of hot water. The lacquer thus obtained is the poorest quality and is chiefly used for priming.

The best lacquer is that which is obtained from the lower part of the stem and during the hottest season of the year.

If the trees are not intended to be destroyed, they are treated in a much more sparing and careful manner.

A single tree, when completely exhausted, usually furnishes between 25 and 50 Gm. of the crude lacquer. The latter is not in a condition to be used immediately for polishing purposes, but has to undergo a process of clarification, being for this purpose several times filtered and triturated in flat tubs until it is homogeneous. This sort of lacquer is known on the price lists as "seshime," and is used both for priming and for final polishing.

For the preparation of the finer qualities of Japanese lacquer, it has to undergo a still further operation, such as complete deprivation of the water and the admixture of various other substances, such as cinnabar, red oxide of iron, and other coloring agents.

The Number of Tubercle Bacilli in Phthisical Sputum.

An editorial of the *Medical Record* of July 18th gives some interesting data and figures regarding the probable number of bacilli tuberculosis. We reproduce it here, but have taken the liberty of making some needed corrections in the figures.

Dr. E. H. Nuttall, of Johns Hopkins University, has shown that phthisical patients expectorate from 250,000 to 4,000,000,000 bacilli in twenty-four hours. Taking the average of, we will say, 100,000,000 per day, the patient would expectorate 36,500,000,000 bacilli a year, and if he lives three years the total number of micro-organisms expectorated during his illness would be 109,500,000,000. Or multiply the annual output of 36,500,000,000 by 70,000, the number of cases of phthisis in this country, and we are confronted with the sanitary problem of destroying 70,000 times 36,500,000,000 microbes every year.

These are rather discouraging figures, but it may be supposed that the vast majority of tubercle bacilli in the sputum die as the result of intercurrent disease or a pitiless environment.

Formosa Camphor.

Formosa camphor is obtained from the *Laurus Camphora*, immense forests of which extend over most of the lower ranges of hills in the island, extending up the lower slopes of the mountains inhabited by the savage tribes. Many of these forests have not been touched, and the statement that the camphor supplies in South Formosa are becoming exhausted applies only to those districts which are purely Chinese. The supply from other parts is practically inexhaustible. Even in purely Chinese districts it is only at certain places that the supply is falling off, in consequence of the reckless manner in which the trees have been destroyed, partly for the sake of the timber and camphor, and partly, no doubt, simply to clear the ground for cultivation.

It has been often stated that the method of obtaining crude camphor in Formosa is by steeping the chopped branches in water, and boiling until the camphor begins to adhere to the stick used for stirring, when the liquor is strained, and by standing the camphor concretes. By this method it does not necessarily follow that the tree is destroyed; in fact, with a little care there is no need that this should be. But although this method may have been in use in former days, it certainly is not now. On the contrary, I am assured by several natives engaged in the trade, whom I have questioned on the subject, that the yield of camphor from the branches is too small to repay the labor of extraction.

The method in general use now is as follows: The camphor expert selects a tree and scrapes into the trunk in different places, using an instrument somewhat resembling a rake, with a view of ascertaining whether it contains sufficient camphor to repay the labor of extraction. A tree is said not to be worth anything for camphor purposes until it is fifty years old, and the yield is very unequal; sometimes one side only of the tree contains enough camphor to satisfy the expert, and in this case that side alone is attacked. The trunk is scraped to as great a height as the workmen can conveniently reach, and the scrapings are pounded up and boiled with water in an iron vessel over which an earthenware jar, specially made for the purpose, is inverted. The camphor sublimes and condenses on the jar, which is removed from time to time, scraped, and replaced. The root of the tree, and the trunk for some eight feet up, contain, as a rule, the greatest quantity of camphor. If the scrapings obtained from the trunk yield well, the chipping is continued until in the end the tree falls. The roots are then grubbed up, as it is certain they will give a proportionately good return. If, however, the scrapings do not turn out well, the tree is abandoned and work is commenced on another. No attempt is made to extract camphor from the fallen trunk or from the branches. In some cases the trunk is sawn up into timber, but this depends on the locality; from many districts, owing to absence of roads, timber would not pay for its transport.

It is impossible to imagine a more wasteful method of procedure, and it is fortunate that the camphor forests of Formosa are practically inexhaustible.

The quantity of campher produced depends, of course, simply on the amount of labor employed in the business. Ten of the iron pots mentioned above and their accompanying jars make up what is called a "set," and are worked by four men. One set will produce about 65 pounds in ten days, or, say, 1¾ cwt. a month, but this only under the most favorable circumstances; a fair average is about 1¼ cwt.

Recently a change has been made in the camphor monopoly. It is now proposed by the Chinese authorities that the camphor stills shall be licensed before they are permitted to work. The cost of the license will be equivalent to a tax of about 22*s.* 6*d.* per cwt.—a heavy tax, seeing that the actual value of the camphor at the place of production is very little over this amount.—Consul Warren's Report, after *Pharm. Journ.*

Valerianate of Antipyrin and Quinine.

E. Sochaczewski directs this compound to be prepared in the following manner (*Bulletin Commercial*):

Dissolve any desired quantity of valerianate of quinine in a sufficient quantity of 90-per-cent alcohol to obtain a saturated solution. On the other hand, dissolve an equal weight of antipyrin in the smallest possible quantity of distilled water. Mix the two solutions in a crystallizing dish, and warm gently at a temperature not exceeding 50° C. If a higher or too prolonged a heat is applied, the product will turn yellow. This always happens, under such circumstances, with salts of antipyrin; even sunlight has this effect.

If good crystals are expected, only the least possible amount of water must be used. At a certain moment the mixture becomes thick, crystals develop rapidly and often attain a length of 6 Cm.

A New Gold-colored Alloy.

An alloy of copper and antimony in the proportion of 100 to 6 is made by T. Held by melting the copper and subsequently adding the antimony, and, when both are melted and intimately mixed, fluxing the mass in the crucible, with an addition of wood ashes, magnesium, and carbonate of lime, which has the effect of removing porosity and increasing the density of the metal when cast.

The alloy can be rolled, forged, and soldered in the same manner as gold, which it very closely resembles when polished, the gold color being unchanged, even after long exposure to ammonia and acid vapors in the atmosphere.

The cost of the alloy in the ingot is stated at about twenty-five cents per pound.

Administration of Amylene Hydrate.

According to *Nouveaux Remèdes*, a teaspoonful of amyl hydrate may be taken at night in a small glass of beer, but requires to be stirred for about seven minutes to insure its solution. Instead of this the following may be taken as one dose:

℞.	Hydrate of Amylene.	ʒ ss.
	Syrup of Bitter Orange	℥ ss.
	Orange Flower Water, Water.	āā ℥ i.

Its solubility in beer or water is about one part in eight.

It may also be given in capsules containing each one-quarter of a drachm, three or four being taken for a dose.

* * *

New Alkaloid from Seeds of Conium.—The highest boiling portions of crude coniine contain a new base, which can be separated by repeated fractional distillations in vacuum and subsequent crystallization. It crystallizes in needles melting at 98°, and dissolves readily in alcohol, ether, and chloroform; it boils at 230°-233°, and has the composition $C_8H_{17}N.O$. It is therefore isometric with conhydrine, and the name *pseudo-conhydrine* has been suggested by Ladenburg, who has examined the alkaloid.—*Chem. Zeitung.*

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INFORMATION WANTED.

OUR *readers will confer a favor by answering any of the following questions and referring to them by number. We will undertake to forward the answers to inquiries when the request for information is accompanied with a directed envelope and postage. The names of the respondents (unless otherwise indicated) will be published in the next issue of the journal.*

No. 2,527.—Formula for **Osbern's Syrup**.

No. 2,528.—In what States can a Canadian pharmacist, registered, have his diploma indorsed, with necessary fees if needed, and what rules regulate the druggists' liquor license in such States ?

No. 2,529.—Method of transferring pictures, photographs, etc., from paper to glass.

No. 2,530.—Where can paraffin paper be obtained ?

No. 2,531.—How to give a very dark black color to a solution of shellac or rosin in *wood alcohol* (not turpentine).

REPLIES.

No. 2,525.—**Coloring Coal Oil Red.** With alkanet root. Put it in a bag and suspend it in the oil.

W. A. SHANNON,
Mercersburg, Pa.

ANSWERS.

No. 2,532.—**Fine Toilet Soaps.** We are asked to mention some books giving full instructions and formulas for making all kinds of the finer soaps. We presume that our inquirer only means fine toilet soaps, such as can be advantageously prepared even on a small scale. In this case we can refer him to either of the following works: "The Art of Perfumery," by G. W. Septimus Piesse, 8vo, London. "Die Fabrikation der Toilette-Seifen," von Friedrich Wiltner, 8vo, Wien (Hartleben). Both can be obtained from importing book dealers.

No. 2,533.—**Syrupus Fuscus** (M). Syrupus fuscus means "brown syrup," and is the modern Latin term for molasses.

No. 2,534.—**Paraffin Paper.** This is made in the same manner as wax paper. On a small scale it may be prepared by placing a sheet of paper upon a hot surface, and rubbing it over with a piece of flannel in which a lump of paraffin is wrapped. On a large scale such paper is prepared by passing a so-called "endless" roll of paper through heated cylinders covered with felt, which are slowly and evenly fed with melted paraffin. It is then either cut into sheets or put up in rolls.

No. 2,535.—**Chloride of Gold and Sodium.** Treat gold coin with four times its weight of aqua regia at a gentle heat. The silver which is present will be converted into chloride, and finally be left behind. When the coins have been entirely disintegrated and apparently dissolve, evaporate the liquid (without previous filtration) in a tared flat porcelain capsule, on an oil or glycerin bath, at a temperature of 115° C., to dryness. The object of this is to get rid of the excess of hydrochloric acid. Weigh the capsule and contents, then treat the latter with distilled water until the chloride of gold is extracted. Dry the capsule, which now contains only the chloride of silver, and weigh again. The difference is the chloride of gold in aqueous solution. Add to this an amount of pure chloride of sodium equal in weight to that of chloride of gold, calculated as dry, and carefully evaporate to dryness at a temperature not exceeding 100° C.

No. 2,536.—**Embalming Fluid.** A very efficient and at the same time inexpensive embalming fluid is that known as Morell's. The formula is as follows:

Arsenious Acid	14 oz. av.
Caustic Soda	7 oz. av.
Carbolic Acid	a sufficient quantity.
Water	enough to make 100 oz. av.

Dissolve the arsenious acid and the caustic soda in 40 ounces of water by the aid of heat. Allow the solution to cool, and add to it just enough carbolic acid to render it opalescent. Finally add enough water to make the product weigh 100 av. oz.

No. 2,537.—**Piperazine** (Reading). Piperazine is said to have the property of dissolving a large proportion of uric acid. One part of the urate of piperazine is soluble in about 50 parts of water, while urate of lithium requires 368 parts of water for its solution. Piperazine is not toxic nor caustic. Its dose is from 5 to 15 grains. It is in form of shining, crystalline plates. At present it costs about $1.00 per gramme. Fuller information on this subject will be found on page 192 of the current volume of our journal.

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Glycerite of Salicylate of Sodium, prepared by dissolving 4 to 6 parts of the salt in enough glycerin to make 100 parts, is highly recommended by S. C. Inglessis (*Semaine méd.*) as an external application in erysipelas. It is to be applied every two or three hours, and the part then covered with salicylated cotton. At the same time the sodium salt is also given internally, in doses of 0.2 Gm. (4 grains).

Zinc Glue for Stiff Surgical Dressings.—Treutler recommends a preparation, first suggested by Unna, for obtaining stiff surgical dressings, such as are applied to fractured or dislocated limbs. It is as follows:

Oxide of Zinc	10 parts
Gelatin	30 "
Glycerin	30 "
Water	30 "

This is thickly applied and rubbed into the muslin or gauze forming the bandage. A thinner preparation contains 20 parts of gelatin and 40 parts of water, the other ingredients remaining the same.—*Med.-chir. Rundschau.*

To Prevent Silver from getting Black from the absorption of sulphuretted hydrogen, one of the most efficient methods is to wrap the objects in paper containing or coated with white of lead. The latter may either be applied to the surface of the wrapping paper by means of starch paste, or the paper may be impregnated with a solution of acetate of lead, dried, then impregnated with a solution of sodium carbonate, and again dried. The paper will now contain acetate of sodium and carbonate of lead.

Only such objects can be fully protected by this paper as can be completely wrapped therein, so that the air may be entirely deprived of hydrogen sulphide.

CORRESPONDENCE.

Aristol.

Editor of American Druggist:

Under the heading "Aristol," your issue of June 1st (page 171) contains an abstract, taken from the *Pharmaceutical Journal*, of a paper by Mr. Reuter, which treats of the tests of aristol, and leads to the result that the commercial article must be considered as impure. I wrote a reply to this, which appeared in No. 11 of the *Apotheker Zeitung* (Berlin). It is there shown that the accusations against aristol are based upon unfamiliarity with the subject, as well as upon want of care during the analytical work. Reuter found that if aristol is triturated with water it yields a filtrate, the residue of which, when treated with fuming nitric acid, gives off iodine. He concludes from this that the preparation contains alkali iodides.* This conclusion would have been justified if the constituents of such a compound had been demonstrated to be present. But this was not done. Indeed, the yellowish residue [which the filtrate leaves on evaporation] is not an alkali iodide, but a water soluble organic iodine compound. On heating this residue on platinum it carbonizes and gives off iodine—a behavior which is foreign to an alkali iodide, the latter being a relatively fixed salt. On heating more strongly the carbon is completely burned up, and if the trace of residue is now taken up by water no characteristic color [no color characteristic of iodine] is obtained by treatment with fuming nitric acid and starch, or with chloroform. Hence the presence of alkali iodides in aristol may be regarded as refuted.

These water-soluble organic iodine compounds are formed when aristol comes in contact with water, and may be continuously produced by digestion with water. Their formation is due to a secondary process, since iodine is previously set free, which, however, at once enters into combination again to form those soluble compounds. The intermediary liberation of iodine may be demonstrated by triturating dampened aristol with solution of starch and allowing to stand several hours. This may be repeated with the same result any number of times.

Reuter has ignited powdered aristol, extracted the carbonaceous residue with water, and with this obtained the iodine reaction. From this he again concludes that the preparation contains alkali iodides. It is a well-known property of many bodies that they can be completely burned up only with very great difficulty. As an example I need only mention the determination of ash in many articles of food, particularly in spices. Thus, for a complete incineration of pepper, many hours' ignition in a muffle furnace are required, so as to obtain a clean ash. Aristol, likewise, is very difficult to incinerate, and it is necessary to moisten the carbonaceous residue repeatedly with water to burn it up completely. Had Reuter done this he would have found that aristol yields no ash at all, least of all one which gives a reaction for iodine. Reflection alone should have taught him that when a substance soluble in water is suspected to be contained in one properly insoluble therein, not the substance itself, but its aqueous extract, should be examined for this purpose.

Reuter dissolved aristol in ether, and obtained a residue which he separated by filtration. In this he also proved the existence of iodine. But even here the conclusion is fallacious, for it would have been only necessary to ignite the residue in order to convince the analyst that this residue, after ignition, no longer contained iodine, but that it volatilized with liberation of iodine. By means of the simple reactions with silver nitrate, mercuric chloride, etc., the presence of alkali iodides is not absolutely demonstrated, for all water soluble iodine compounds respond to them. As already stated above, iodine is set free as an intermediary product. Hence, *minute quantities of iodine must* be contained in aristol.

But aristol itself is so easily decomposable that its prolonged contact with iodide of potassium causes iodine to be set free—that is, produces decomposition; hence it is wrong to examine aristol for free iodine in this manner. Yet Reuter has the excuse of being unfamiliar with the properties of aristol.

On triturating aristol with glycerin, and adding a few drops of starch solution—a solution of starch in water, of course without addition of zinc iodide—a reddish-violet tint will appear, which corresponds to barely 0.02 per cent of free iodine.

For the purpose of purifying aristol, Reuter proposes to treat it a short time with glacial acetic acid, because the resulting product would then (1) have a handsomer color, and (2) would be completely soluble in ether. Recognizing these two facts as true, it must nevertheless be stated that such a treatment produces a body which can no longer be regarded as di-iodo-di-thymol (which is equivalent to aristol). For, while aristol contains 48 per cent of iodine, the product produced by the intervention of glacial acetic acid contains only 30 per cent. This may be easily demonstrated by performing the experiment. It will be seen that the filtrate contains much free iodine, and is rendered deep blue by starch. Treating aristol with glacial acetic acid will, therefore, not result in its purification, but change it completely and convert it into an absolutely *inert* body.

Finally, as regards the reaction of identity, by means of sulphuric and glacial acetic acids, which is given by Reuter, it is fallacious, because this produces a liquid *always* colored with iodine. Moreover, aristol is a derivative, not of thymol itself, but of di-thymol.

DR. FELIX GOLDMANN.

ELBERFELD, June 26th, 1891.

"Patents" and Pharmacists.

Editor of American Druggist:

In your editorial, issue of July 1st, you arraign the pharmacist, holding up to view his two attitudes towards "patents," *i.e.*, his former apologetic course in regard to handling them, and his present fuss about the loss of the trade.

I am sure that I voice the sentiment of pharmacy in what I say below.

We admit the two attitudes, and that they are wide apart—as wide, indeed, as are the Rockies and the Alleghenies; and the geographer who brings to notice those two "attitudes" of America without notice of the reality between, states the truth of America as closely as your article states the true position of pharmacy on the question of "patents."

The thinking pharmacist knows that patents are an unmixed evil in the community; not that they are not effective remedies, but—

1. They have already prostituted "domestic practice of medicine" from the approach to exact science, indicated by the use of simples, to the superstition, not to say fetichism, of dependence on "patents."
2. The practice of using "patents" is at least twice as costly to the public, even when the distributer's profit is cut out, as the better and more scientific domestic practice by agency of simples.
3. It is a retrograde movement, that appeals only to the pessimist, the logical sequence of whose position is the return to a materia medica of toads, excrements, and other vile things.

Knowing all this, we are striving to hold on to the sale of patents, *because they are all there is left of a sometime extensive trade in domestic practice supplies;* hence the sale of patents being a metamorphosed branch of that part of trade that we may claim as *exclusively* ours, we are loath to see it go from us. So it falls out, when the fogs of superficial view are cleared away, that our later attitude does not stultify our former position; it is only to keep half a loaf rather than to have no bread.

I fail to see that the relation of the physician and pharmacist is disturbed by the controversy; neither is more than equal to his day and generation, and honors are easy between them. While the former runs after the superstition of pharmaceutical extravagances, the latter panders to the fetichism of patent medicines. Who is competent to demand that one shall be superior to the times? Both are treading the mill of the gods that grinds slow but exceeding fine, to the end of charlatanism in one and empiricism in the other.

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* As we have already once before explained, we disapprove the term "alkaline iodide" in the sense of "iodide of an alkali metal" (such as iodide of sodium, iodide of potassium). These iodides may be *neutral* or *alkaline*, or even *acid*. We may sometimes wish to speak of some iodide (no matter whether of an alkali element or of a metal, etc.) as being *alkaline*—that is, as having an alkaline reaction. For this purpose the term "alkaline iodide" is appropriate, just as much as when we speak of "alkaline phosphates" in contradistinction to "neutral" or "acid" phosphates. In order to express the idea "iodide of an alkali element," we decidedly prefer the term "alkali iodide," in which the word "alkali" is used as an adjective.—ED. AM. DRUGG.

D. G. Stoughton.

Hartford, Conn.

Wiesbaden Elixir.

Editor of the American Druggist:

Reading the article "Concerning Wiesbaden Elixir" in the American Druggist of July 1st, recalls to my mind the filling, for a German customer, a recipe written by a German pharmacist. As the ingredients are the same with a few additions, and the quantity nearly the same as given in the formula in the Druggist, I herewith submit a copy of the same.

The owner of the recipe immigrated to this country about 25 years ago from the near neighborhood of Wiesbaden, as you will notice that the weights given are the old weights used before the introduction of the metric system in Germany:

ORIGINAL.	TRANSLATION.	
℞. 2 Loth Socotrinische Aloe,	℞. Socotrine Aloes....	500 grains.
2 Quentchen türkische Rhabarber,	Rhubarb.............	50 "
2 " venetianische Theriak,	Theriac, "Venetian,"	50 "
1 " wiener Saffran,	Saffron, "Vienna,"	25 "
1 " Lerchenschwamm,	Agaric	25 "
1 " Angelikawurzel,	Angelica Root.........	25 "
1 " Engelsüsswurzel,	Polypody Root......	25 "
1 " Myrrha,	Myrrh	12 "
½ " Zitwerwurzel,	Zedoary Root.........	6 "
½ " rothen Enzianswurzel,	Gentian	6 "
3 " Cardobenedictenkraut,	Blessed Thistle......	75 "
3 " Tausendgüldenkraut,	Centaury Herb......	75 "
1 " Kalmuswurzel,	Calamus Root........	25 "
1 " Wermuthskraut,	Absinthe	25 "
3 " getrocknete Pomeranzen	Bitter Orange Peel.	75 "
½ Quart guten Branntwein.	Brandy...............	18 fl. oz.

[The translation is by us. The weights are close approximations to the original. "Branntwein" is not necessarily equivalent to "Brandy," as we understand it, but the latter may be used, of course. The formula above given has been in use, variously modified, for a very long time. Its last "improver" was Warburg, who replaced some of the bitters by quinine.—Ed. Am. Drugg.]

Max L. Kaestner.

Buffalo, N. Y.

NEWS AND NOTES.

New York State Pharmaceutical Association on Proprietary Goods.

The New York Pharmaceutical Association, at their annual meeting on June 23d, at Hotel Champlain, New York, passed the following resolutions unanimously. The italicized sentences in the recommendations to the Association of Manufacturers and Owners of Proprietary Preparations have been added in order to strengthen the document which was passed, at the request of the Association, by the American Pharmaceutical Association at New Orleans, April 28th:

" We recommend that proprietary articles be sold hereafter upon the following conditions:

"1. Manufacturers and owners of proprietary preparations on the contract plan agree to sell their products to druggists only.

"2. Wholesale druggists or distributing agents agree to sell contract goods solely to druggists, excepting in those localities where no druggists are in business. Wholesale druggists are not to supply any dealer on the cut-off list. Further, wholesale druggists agree not to substitute when any order is presented for any articles on the contract plan.

"3. Retail druggists to sign an agreement including all contract or rebate articles, that they will not violate the conditions of said agreement; and, further, agree not to substitute another article for any article requested that is on the contract or rebate plan, nor deliver such goods to any dealer on the cut-off list; and it is hereby provided that the names of all druggists be placed upon the cut-off list who fail to sign the agreement.

"4. Under no consideration shall any manufacturer, wholesale druggist, or retail druggist, directly or by collusion, supply any proprietary preparation on the contract plan to dealers on the cut-off list.

"5. Manufacturers, wholesale druggists, and retail druggists shall refuse to sell to commission merchants, brokers, expressmen, or agents any article on the contract plan, unless such sales are for export or for purchasers who are removed from domestic competition.

"6. Manufacturers and wholesale druggists or distributers of articles on the contract plan agree not to sell such articles to any retailer of said articles who will not agree to sell at full retail prices. *Neither will manufacturers or owners of proprietary preparations on the contract or rebate list, or wholesale druggists, sell any article on that plan at retail unless at full retail prices.*

"7. Manufacturers of proprietary articles on the contract plan to make their contracts in such a manner as not to materially increase the purchasing price of the retailer.

"8. *Any manufacturer or owner of any proprietary medicines on the contract or rebate plan*, wholesale druggist or retail druggist, violating his contract, shall be placed on the cut-off list as a penalty for such violation."

The conditions which are presented above have been submitted to the Association of Manufacturers of and Dealers in Proprietary Articles, with the view of aiding them in the work of solving the cut-rate problem, the details of the said plan being left to the judgment of that Association.

The Illinois Pharmaceutical Association.

The Committee on Arrangement of the Illinois Pharmaceutical Association has made the preliminary arrangements for the twelfth annual meeting at Kankakee, August 25th, 26th, and 27th. A large tent has been secured, and the sessions will be held in the magnificent grove adjoining Hotel Riverview. The following programme has been formulated:

Tuesday, August 25th.—Opening ceremonies at 2 P.M., by an address of welcome by Hon. Geo. R. Letourneau, mayor of Kankakee; reception of delegates; report of Committee on Entertainment; annual address of President A. A. Culver, Momence; report of Secretary C. S. Hallberg, Chicago; report of Treasurer A. L. Moody, Lockport; report of Executive Committee.

8 *P.M.*—Inaugural ceremonies of the Knights of the Golden Pestle; tableaux vivants with fulminations; grand reception and ball at Hotel Riverview.

August 26th, 9 A.M. to 1 P.M.—Reports of committees; legislation; scientific papers; trade interests.

Afternoon and Evening.—100-meter foot race; 500-meter mule race; 100-meter fat men's race.—For the ladies: Potato race, egg race.—Baseball: C. C. C. vs. K. K. K.; tug of war for grand prize; single-scull boat race, bicycle race; grand rally of the K. of G. P.; phosphorescent illumination: atmospheric vibration by the K. G. P. band; grand ball and refreshments.

August 27th, 9 A.M. to 1 P.M.—Election of officers; election of nominees for vacancy on Board of Pharmacy; report on adulteration; on Board of Pharmacy records; on reorganization; installation of officers; adjournment.

Afternoon and Evening.—Steamboat excursion on the Kankakee River; 100-meter wheelbarrow race; 25-meter three-legged race; 50-meter lame legged race; backward race for ladies; football, Illinois vs. Egypt; double-scull boat race; 50-meter aquatic contest; Delsarte exhibition on campus; grand finale, handshaking.

ENGLAND.

Extensive preparations are being made for the annual meeting of the British Pharmaceutical Conference, which takes place this year at Cardiff, South Wales. So far not many papers are promised, and the secretaries have issued a circular to former contributors, wherein they state that contributions from willing and capable workers are much sought after; but they trust that loyalty to the

Conference will prevail, and that assistance will be given so as to make the scientific side of the meeting a success. The secretaries are W. A. H. Naylor, F.C.S., F.I.C., manager of the laboratory of, and partner in, the firm of Hearon, Squire & Francis, of Southwark street, London, and F. Ransom, F.C.S., a member of the Board of Examiners of the Pharmaceutical Society, and partner in the celebrated firm of extract makers at Hitchin. The president of the Conference this year is William Martindale, F.C.S., whose name is widely known as a leading authority on pharmacy and author of the "Extra Pharmacopœia." This work has already reached its seventh edition in nearly as many years, and is a wonderfully compact book, containing valuable notes on new drugs and additions to materia medica. The value of the book is enhanced by the assistance given by Dr. Wynn Westcott in its compilation, who has tabulated all the medical references to the drugs from the leading medical journals.

Mr. Martindale, who was for some years teacher of pharmacy and demonstrator of materia medica at University College Hospital, was also an examiner (in dispensing) of the Pharmaceutical Society, which he dropped to take a seat upon its council. He is most genial and courteous in disposition, a clear and distinct speaker, never rising, however, to heights of oratory, and emphatically a practical pharmacist. It is one of the finest compliments to the modern disciples of pharmacy to find that nearly every medical man in the land possesses and relies upon his copy of Martindale's "Extra Pharmacopœia" or Squire's "Companion to the Pharmacopœia." These works are here what Remington's treatise and the dispensatories are with you.

Each year the committee which is supposed to look after the interests of the Conference issues a blue-list, containing a numerous assortment of very indifferent subjects for investigation. Unlike that issued by the A. P. A., this list is absolutely neglected by the leading contributors. Nor is this difficult to understand, when the following illustrate pretty clearly the kind of investigation which this armchair committee suggests: "Report on the efficiency of the purification of potable waters by alum. It is stated to remove diseased (*sic*) germs and ptomaines." "A research required on castor oil having for its object the isolation of the purgative principle," etc. It is evident from these that the committee has a profound opinion of the ability of the pharmacist to grapple with bacteriological subjects and chemical problems that have defied years of attempted investigation.

But perhaps the most objectionable feature in this neglected list is the constant recurrence of questions which in one or two isolated cases some young and rash experimenter has ventured to answer. Thus we are still invited to examine the physical and optical properties of the terebene of commerce, in spite of the fact that this was done when terebene was in fashion, and that, as it has quite dropped out of medical practice, it hardly appears worthy of further attention.

The Chemical Society has been having a lively time of late. There is a certain section of Fellows, largely composed of public analysts, who are strongly dissatisfied with the method of election of new Fellows. They desire that some definite qualification of chemical ability should be proved to be possessed by the intending candidate. At present the signature of notable scientific men, who sign the certificate for either personal or general knowledge, is sufficient. The reform section compelled a meeting to take place at the end of last month, whereat they submitted a brand-new set of by-laws, calculated to render the election more difficult and as some indication of ability of candidates. A large and representative party appeared to oppose and maintain the existing *régime*. The direct negative to the new by-laws was proposed by Mr. Carteighe, president of the Pharmaceutical Society, in a slashing speech, and feebly seconded by Sir Frederick Abel. On the same side followed Sir Henry Roscoe, Professor Tilden, and Mr. Warington. The reform party has only one orator of any calibre, Mr. Cassal, but he made good use of his talent and caused considerable excitement. Perhaps the best expression was that of Mr. Warington (of nitrification fame), who said that what the Chemical Society had to fear was not the gentlemen in their midst who were not chemists, but the chemists who were not gentlemen. In the end the reformers were overwhelmed by a majority of nearly 100.

Dr. A. Richardson, of University College, Bristol, has just published experiments which tend to prove that the dark product of silver chloride exposed to light contains no oxygen and is therefore a subchloride. For years photographical chemists have been divided in their opinions as to the nature of this black compound. Many have held very firmly to the idea that it was an oxychloride, as the atomic theory seems averse to a subchloride, silver and chlorine being monads. The darkened product was examined for oxygen, after drying at 110° C. until it ceased to lose weight, by heating in a current of pure hydrogen, the gaseous products being passed through a weighed phosphorus pentoxide tube. The increase in weight of this tube, with quantities of 25 Gm. of dark chloride, was never more than 5 Mgm. or 0.02 per cent—a quantity certainly insufficient to bear out the oxychloride theory.

Some attempt has been made recently to disparage the Ketone chloroform and that prepared from any other source than pure alcohol. It is singular that it has occurred simultaneously with M. Pictet's announcement that he has prepared, by a cold crystallizing method, an absolutely pure chloroform. Several deaths having taken place recently under chloroform, the medical men immediately rushed to the opinion that they were due to these impurities, which up to the present have not been proved to exist. The editor of the *Pharmaceutical Journal* has given his opinion that only chloroform made from pure alcohol should be used, according to the Pharmacopœia. With this very few authorities agree, and Mr. A. H. Mason, London agent for the "Warington" Ketone chloroform, points out that the method given in the B. P. is only stated as a means by which it "may be prepared." As there are no possible chemical differences in the products obtained from the various sources, it is at least a little premature to condemn other methods than one given tentatively in the B. P.

London Market Report.

MINCING LANE, July 15th, 1891.

The fortnightly auctions with drugs took place last week, but the bidding was very quiet and demands were limited. A very fair assortment was offered, much of which was bought in. Aloes, myrrh, opium, and ipecacuanha were in good demand, and prices rose in consequence; but lower tendencies were more general. Quinine is stationary; indeed, a broker described it as indeclinable, as holders ask 22 cents, whilst buyers refuse to offer more than 21 cents. Latest advices from Smyrna announce activity principally for the American market, and prices varying from 1 78 to 1.96 f. o. b. It is expected that the present crop will yield 8,000 cases, whilst over 1,000 remain on hand of the old drug. Mercurials are cheaper, but other chemicals remain unaltered.

The following are current prices:

Acid, citric......	per lb.,	$0.40	Mercury, calomel	per lb.,	$0.74
oxalic	"	.07	corrosive subl..	"	.58
tartaric........	"	.28	Myrrh...........	"	.28
Arsenic..........	per cwt.,	2.88	Oils, refined:		
Bleaching p'wd'r	"	1.92	colza........	per cwt.,	6.74
Borax..........	"	7.02	castor.........	"	7.52
Cream of tartar,	per lb.,	0.20	cod............	"	5.48
Camphor, ref'd,	"	0.40	linseed........	"	5.22
Cantharides (Chinese)........	"	2.26	olive..........	"	9.84
(Russian)......	"	.84	rape...........	"	6.12
Cascara	per cwt.,	6.04	turpentine	"	6.78
Ipecacuanha.....	per lb.,	2.08	Petroleum	per gallon,	.11
Jalap............	"	.28	Shellac..........	per cwt.,	17.2 to 19.6
Mercury.........	"	.52			

MISSOURI.

WM. E. BARD, of Sedalia, ex-president of the Missouri State Pharmaceutical Association, is considerable of a politician, and takes a view of matters after the fashion of one who is accustomed to managing men and affairs. This probably accounts for one of the recommendations in his annual address this year. He proposed that the State be divided into districts of one or more counties each, and placed in the hands of local men who are willing to work them in the interest of the Association. "Billy Bard" is well known over the State, and his idea was adopted at the Excelsior Springs meeting.

Professor Francis Hemm, the new president of the State Association, is a man who will have plenty of good practical recommendations to make in his annual address next year, but he is also one who knows a good thing when he sees it, and never hesitates to take advantage of ideas because they do not happen to be his own. Thus it is that he is hard at work on the subject of county organization as proposed by his predecessor in office. Mr. Hemm will soon have a man selected in each county of the State, who will be entrusted with the duty of organizing his fellow-druggists into a county society which in turn will affiliate with the State Association.

Dr. C. C. Davidson, of Eldorado Springs, is the first man to respond with a report of a county association of druggists. The doctor is one of the hardest workers in the State, and has had frequent recognition at the hands of the annual conventions, and we look for him to climb still higher the ladder of fame as a pharmacist.

This project of county organization to assist the State Association should not be confined to Missouri; for it is equally applicable to any or all other States in the country. There are many other places where it is needed far more than here, where we have a good, strong, and prosperous State society. Think of all that could be accomplished by it, if each State had all of its counties supplied with local organizations. With such a power, the National Formulary could be made "national" indeed, and a copy placed in the hands of each druggist of this land. The work could be properly brought to the notice of the doctors, and its preparations prescribed in place of the secret nostrums that are now so frequently ordered by physicians. The revised edition of the Pharmacopœia would also get a foothold in the profession that no previous edition ever enjoyed. It could be made a "United States" working manual as well as authority. The metric system would soon count its adherents by "tens" of thousands, and completely drive to the wall the old foolish systems that now bear the name of "apothecary." The outlook is wonderful, and now is the time for each State association to take hold.

One of the members of the Committee on the Revision of the United States Pharmacopœia, who is quietly but earnestly and effectually working at the task assigned him, lives in St. Louis. Even Dr. Curtman's most intimate friends and most frequent visitors to his laboratories hardly realize the great amount of original work he is doing towards the revision of the Pharmacopœia. The doctor is not a man who makes a show of what he does or expects to do, but rather shuns publicity, and thus it is that some of his co-laborers will be surprised to see what a valuable man is of their number. It is not generally known that this eminent chemist is a practical druggist as well as physician, in addition to his purely scientific acquirements The doctor has served his time behind the prescription case, and in former days attended to a large and desirable practice of medicine.

This State will be represented at the Kankakee meeting of the Illinois State Pharmaceutical Association in August. For more than a half dozen years one or more members from Missouri have attended the Illinois conventions, but not until 1891 did any one cross the river from the other side and join with the Missouri druggists. Two Illinois pharmacists found their way over to Excelsior Springs last June, and as a consequence the delegation will be larger this year than ever before.

Prof. Francis Hemm will go to Kankakee for the convention.

Prof. J. M. Good expects to go and get the run of an Illinois convention.

Dr. C. O. Curtman will attend the Wisconsin convention, and stop at Kankakee on his way home.

Dr. H. M. Whelpley is a regular attendant at the Illinois meetings, and would not enjoy the summer if he missed one of them.

NEW ENGLAND.

By the late destructive fire, July 14th, in Pittsfield, Mass., Messrs. Farrell & Fahey lost their drug store. Mr. Farrell came to Pittsfield last fall from North Adams and opened the store. A few months since he took in Mr. Fahey as partner, and had just made quite extensive additions to both stock and fixtures. In fact, at the time of the fire improvements in fixtures were hardly complete. They claim a loss of $6,000; insured for $2,500.

Among the recent deaths of pharmacists in New England we notice that of Dr. Charles M. Trask, of White River Junction, Vt., who died June 28th. Dr. Trask was a practising physician formerly, going to the war as assistant surgeon of the gallant 5th New Hampshire Volunteers. After the war he practised for a time in Wells River, afterward engaging in the drug business for a time in Boston, subsequently removing to White River Junction to engage in the drug business. He was remodelling his store, putting in plate-glass windows, new fixtures, etc., making it one of the handsomest stores in the city.

T. C. Blood & Co., Vermont, are refitting in handsome shape. Bangs is putting in a fine set of oak fixtures. When completed it will "lay over" anything in town.

W. P. Beckford & Co. are to close up and retire from business. Mr. Beckford's health has been poor for several years.

C. W. Hathaway & Co., of Salem, have opened a new store in the "city of witches."

F. E. Flint, the well-known Lynn druggist, will open a new store on Washington street, Salem, under the title of W. J. Gearon & Co. Mr. Gearon is a former clerk of Mr. Flint, and has been for the past two years in the employ of F. C. Goodell, of Lowell.

P. L. Gagnon has recently opened a new and handsome store of Whittle's manufacture, under the Corley House, Springfield. Mr. G. is well and favorably known in Fall River, where he was formerly engaged in business.

We regret to notice the assignment of Mr. A. W. Lowe, a promising young pharmacist of Lawrence. He has had ill luck, but we trust will be able to effect a settlement and continue.

Mr. Heber Townsend, of Rockville, Conn., has been forced by dulness of business to call a meeting of his creditors.

O. J. Carroll, of Worcester, has recently sold his store to his clerk, Mr. Stewart, of the class of '87, New York College.

W. W. Robins has sold his store on Main street, Lynn, and has tastily fitted up the store on Front street formerly occupied by W. R. Jormery, and is running it with his accustomed vim.

E. A. Buffinton, the well-known pharmacist and manufacturer of homœopathic medicines, of Worcester, has just returned from a year's sojourn in Europe.

W. B. Pettengill has just opened his new store on State street, Springfield. It is a beauty. He will continue the one under the Massasoit House as previously.

Harry Comstock, formerly with H. E. Jones, has recently opened a neat little store on Main street, near Broad, in Springfield.

Mr. Stimpson, formerly in the employ of Weeks & Potter, has opened a new drug store on Lewis street, Lynn.

The Lynn Druggists' Association held its twelfth annual meeting June 23d. Mr. E. A. Besson was elected president and J. M. Nelson secretary. Through all trade disasters this association has been able to maintain in all the pharmacies in the city, fifty or more, full retail prices since its organization.

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Rust may be removed from finely polished steel, without injury to the surface, by cleaning the article with a mixture of 10 parts of tin putty, 8 of prepared buck's horn, and 25 of alcohol, and then rubbing with soft blotting paper.

American Druggist
AN ILLUSTRATED TRADE JOURNAL

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Licorice.

THE order of plants Leguminosæ contains very many of our best known and most useful ones, and in it the wild weed that gives the licorice of commerce. It belongs to the genus Glycyrrhiza, though many other plants of near genera have roots that possess similar qualities. Especially is this the case with the *Abrus precatorius* Lin., that grows abundantly in the West Indies, notably in Jamaica, and in the islands of the Indian Ocean. It ranks over old hedges and fences with a strong, twisted, rugged stem; bears an insignificant little flower, that gives a rough pod enclosing the little scarlet seeds tipped with black so well known. When not fully ripe they are pierced and strung together to form necklaces, bracelets, rosaries, etc., frequently mixed with the larger silvery seeds of "Job's tears" (*Coix lachryma*). I have seen many of the colored nuns, or *Sœurs de Charité*, counting their beads while patiently watching the couch of sick and dying sailors. The long rosaries were made of the red and white berries, and the prayers marked off with sandalwood beads. The roots of the Abrus are used by all Creoles for chewing and other purposes in various bronchial ailments. They have the taste of licorice, but do not yield the rich juice of the Glycyrrhiza.

There are three species of plants, both wild and cultivated, that yield the licorice that is imported by many tons every year into the United States. They are the *G. glabra*, *G. glandulifera*, and *G. echinata*, the latter being considered the best for cultivation. These plants grow wild in all the countries of Europe bordering on the Mediterranean, and their habitat extends through Asia Minor to Central Asia and China. England cultivates it in Surrey and Yorkshire, and the *G. lepidata* is said to be a native of the plains of Missouri and other similar localities in the Southwestern States.

The uses of licorice are varied and numerous. The manufacturers of chewing tobacco consume a great quantity. It serves as a demulcent for coughs and colds, and is an ingredient in many syrups and elixirs, besides having a remarkable effect in masking nauseous medicines. Porter and even ale breweries avail themselves of its saccharin, and the roots are extensively employed by them.

It is imported in different forms: in the roots, also in rolls or sticks of the dried inspissated juice that come packed in sweet-bay leaves. The licorice imported into England from Calabria, Sicily, goes by the name of Solazzi or Corigliano juice; that grown in Yorkshire is made into a confection called Pontefract cakes. The roots of the licorice contain a large amount of sweet, mucilaginous juice, that owes its sweetness to a peculiar principle called *glycion*, or *glycyrrhizin*, which is present in both roots and leaves. The sugar is said to be not crystallizable, and not susceptible of vinous fermentation.

The cultivation of this plant would have been arduous in former years when there was only hand labor and money scarce. There is now plenty of the latter article lying idle; agriculture has also made very rapid strides, and the introduction of the wonderful labor-saving machines now in use for ploughing, etc., would render the successful growth of the plant almost a certainty. It could then be put on the market pure, for even licorice has not escaped in this age of adulteration, as starch, rice, and wheat flower, and even wood ashes, have been used for this purpose. I have carefully collected every available information on the subject, and its growth and cultivation in Europe. I give it for the benefit of those willing and able to introduce fresh objects of commerce to utilize lands good for no other purpose, and to give profitable employment in the gathering season to numbers of willing but often idle hands.

I will first speak of the licorice as native of Southern Europe. The qualities in different countries vary greatly. It is said that the juice from Turkey and Greece is bitter, of Sicily and Spain sweet and rich, but that of Italy the richest, though less is exported thence. I am not aware of licorice being cultivated in any of these countries, as it is so vigorous and abundant a wild plant, almost too much so in many places. In Spain it grows finest in the rich bottom lands of the great rivers, and the crop depends much on the mildness or severity of the winters. It is of such vigorous growth that other weeds cannot encroach on it and crowd it out, and no parasite or insect pest is known to infest it. It is so tenacious of life that if only a small portion of the root is left in the ground after the collecting season, it shoots up again. There are two kinds of licorice, one sending down a tap root from three to six feet deep, and the other runs underground from six inches to two or three feet. The latter is the most highly prized, from the facility with which it is dug up. Only the roots are used, the tops being burned for fuel. It varies in quantity and quality, according to soil, in different provinces, changes its color to red, yellow, or brown, and the proportions of saccharine matter and starch vary also. The climate best suited to the growth of licorice is that where oranges and all the citrus family thrive, as it cannot endure severe ground frosts nor cold, high altitudes.

In Sicily it grows most luxuriantly in low lands adjacent to streams of water. The valley of the river Simeto is so rich that, with the rudest tools and culture, the peasants have no difficulty in growing cereals and other plants for food. Their principal trouble is keeping down the weeds that spring up so abundantly in the cultivated lands, and the licorice, from its pertinacity, is most dreaded. A farmer, when asked if it grew on his farm, replied: "God forbid! for, of all wild vegetation, it is the most difficult to subdue." A crop can be gathered every three or four years from the same ground, and the digging commences after the autumn rains have set in. Licorice requires the hot sun to perfect its juice, but at the same time it bakes the ground so hard, the task of collecting the deep-set roots would be too laborious and expensive till the earth is well saturated. There are seven manufactories in Catania alone, and they produce from 700,000 to 800,000 pounds annually, and others in various cities of the island. Very little of the root is exported either from Sicily or Italy, only the rolls or sticks made from the inspissated juice. Asia Minor exports largely to the United States, mostly in sailing vessels under the Austrian and Italian flags. A great deal of the trade in this country is in American hands. So long ago as 1885 steam presses were in use there, and from Alexandreth, in Smyrna, 6,000 tons were exported, of a value of about $192,000.

Licorice has been cultivated in England since about the fourteenth century. It is said to have been imported from Germany (a fact I doubt from its climate), and was cultivated in the gardens of the old monasteries. The monks, I presume, introduced this plant, as they did so many other useful ones, as it entered very largely into their medicaments. They were in a measure the guardians of the poor in their vicinity in those days, and dispensed medicines for the cure of their bodily ailments, equally with their care for their souls. Licorice has been so successfully cultivated in England that I give the methods employed, as they would, I should think, serve well for our own country.

Mitcham, in Surrey, has been famous for its "herb farms" for over a century, and the air is redolent in summer and autumn with the delicious perfumes of lavender, thyme, rosemary, chamomile, peppermint, and other plants used in medicines or for distillation. The soil is a deep black mould, with some admixture of sand, and considerable licorice has been grown here. The plant is graceful, with feathery pinnate foliage, grows about two to three feet high, and bears small whitish yellow flowers. Since licorice has been imported into England duty free, the crop has been less attended to, as other plants pay better.

Near Pontefract, Yorkshire, it has been long successfully cultivated. The soil is a sandy loam, and has to be of considerable depth to allow the roots to develop well. The beds are prepared by being well trenched, the width of trench and bed averaging three feet, and having the appearance, when finished, of wide celery beds. Commencing early in April or late in March, a top dressing of stable manure is applied and lightly covered over, leaving the trench about six inches below the raised bed. Holes are made with a small spud a few inches apart, and another person follows (often a girl) with a basket of buds or suckers, slips or runners, and they are inserted about four inches below the surface and covered to that depth. This forms a double crop, that is, the buds grow downward, producing the roots, and the suckers form buds for future planting, the width of the beds permitting of cross-rows of plants. The buds and suckers are left in the ground for three and a half years, a crop being obtained in the September following the fourth spring. The first manuring is sufficient, the plants being weeded each summer. A hot, dry season is best for them; they need no irrigation even in the hottest weather, and are free from all insect pests.

The trenches are of course idle for two years, as the plant tops do not show much in that time, so potatoes are planted in them the first year. A species called ash potatoes is used, as they have such small tops they do not overshadow the young licorice plants as larger kinds would.

The second year a crop of cabbages is grown, but the third year the trenches must lie fallow, as the licorice then shows luxuriant growth, and presents in the summer the appearance of a shrubbery of young ash trees. The grower plants a fresh crop in the spring of each year, and in autumn harvests the one of three and one half years' growth.

The only labor required is that the beds be kept clear of weeds in summer, and in November, when the sap is down, the plant tops must be cut off. If the winter proves unusually severe, the tops can be covered with a light layer of earth.

TO GATHER AND PREPARE THE ROOT.

The trench, not the bed, must be dug down to a considerable depth, thus exposing without injuring the roots, and the whole plant is very carefully taken out of the ground. The earth from the second trench is then thrown into the first, and so on to the end of the field. The roots are then placed in dry cellars after removing the tops and suckers, and often covered with sand. The latter serve for the next spring's crop to produce "buds," that is, roots in their early stage, for another year. When the stored roots are dry, they form the yellow licorice for producing the juice of commerce. A small portion of the top of the root is cut off as being of less value than the rest, and is ground into powder and sold to chemists for various uses. The tops are only good for burning.

The 3½ years' sucker, which is gathered with the licorice plant, has now produced "buds," which are reserved with the new suckers for planting. They are either stored in a cellar and covered with rotten dung, or they are made into a mound outside, and well buried in earth or moist sand, and thus withstand the cold, wet winters of Yorkshire.

There appears to be considerable difficulty in finding out some of the first processes of the manufacture of licorice. Mr. Hilliard, who has the largest factory in Pontefract, courteously shows the place to visitors, with the above reservation.

In Sicily, when the roots are dug up, they are bound in bundles and stored in the factories for some time, to season them. When sufficiently cured, men and women cut them into short pieces, and then they are plunged into a vat of water and thoroughly washed. They are then crushed in a rude mill, which consists of two circular stones of lava, the one horizontal, the other perpendicular over it. Through the centre of the upper stone is an axle, to which is attached a mule, which revolves it slowly in a circle. When sufficiently crushed, they are boiled in water for twenty-four hours, then removed from the kettles and placed in a screw press, and the juice squeezed out into a cistern beneath. It is passed through a sieve and again boiled, and the sediment again pressed, and the whole again filtered. When boiled to a certain consistence, it is placed in pans over a fire, and men stir it until dense enough for paste. It is placed in wooden moulds for cakes, or made into rolls or sticks, which, when dried, are packed in bay leaves for exportation. When the roots are required, women scrape off the bark, cut it in the desired length, and when dry it is packed in bags, great care being taken they do not mould nor freeze, and they must be free from the least blemish.

In England now the greater part of the juice manufactured is from roots grown in Spain and Sicily, as the English ones are of smaller size. As the passage is so rapid now over the ocean, a package of roots, buds, or suckers could be brought as fresh and easily, perhaps more so, than from one of our Western States, and doubtless, from the greater heat here, they would improve in size. It would not be difficult to procure fresh wild roots and buds direct from Spain. There is direct intercourse with Seville, whence licorice is shipped to England by steamers or by sailing vessels direct to America. An ordinary Wardian case could be sent to Seville, and would bring bring back roots and buds enough to start a licorice farm.

Allowing for the difference of climate in England and the United States, anywhere south of Washington, D. C., ought to produce licorice of fine quality with careful culture. There are plenty of low-lying lands, good for nothing else, that could be permanently profitable for it, where ground frosts are light. I say ground frosts, because there is no leafage in winter to be injured. The average latitude where licorice flourishes near the Mediterranean is from 36° to 41° N. latitude, in Mitcham, Surrey, 51° 30′, and in Pontefract 53° 42′.—*Scient. Amer.*

Naphthol-Antipyrin.

SEVERAL combinations of antipyrin with compounds of the phenol class have been described recently, and M. Patein has reported the preparation of such combinations with α- β-naphthol, the former of which is a liquid and the latter crystalline. M. Patein now states (*Journ. de Pharm. et de Chim.*, June 15th, p. 585) that the β-naphthol compound can be made by dissolving 150 Gm. of naphthol in 90% alcohol, and adding to it gradually 190 Gm. of antipyrin dissolved in the smallest possible quantity of water, stirring constantly with a glass rod. After a few minutes a viscous mass is formed, and then upon stirring more vigorously, so as to effect a thorough division, at the end of five or ten minutes the liquid clears, and the β-naphthol-antipyrin is deposited in very small but pure crystals that can be collected on a filter. The yield is said to be theoretical, and the whole operation requires not more than a quarter of an hour. If the small crystals be dissolved in hot 60% alcohol, and the solution be allowed to cool slowly in a flask, fine colorless crystals can be obtained that melt at 82°–83° C., and are soluble in alcohol and in ether, but are decomposed by cold water into naphthol, which separates, and antipyrin, which remains dissolved. In order to prevent this decomposition a mixture of 25 parts by weight of 90% alcohol with 40 parts of water should be used. A nitrogen determination was considered to show that the product is a combination of antipyrin and naphthol, molecule for molecule, without elimination of water.—*Pharm. Journ.*

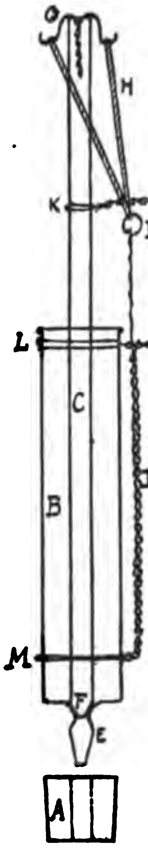
[Original Communication.]

NITROMETER ATTACHMENT FOR BURETTE.

BY EUGENE A. SAYRE, PH.G., OF GLENDALE, O.

For some time I have been using a nitrometer attachment for a burette which I have found so convenient and satisfactory for pharmaceutical use as to render the possession of a more expensive instrument unnecessary. The principal advantage of this attachment over others is the absence of the flexible joint. It therefore requires no extra support apart from the burette, and it also permits the burette to be shaken or inverted without inconvenience.

The materials used in its construction are a narrow glass syringe (½ oz. size is about right), a rubber cork, about 10 inches of small glass tubing, and a few feet of stiff tinned or coppered iron wire.



The accompanying illustration will help to make the description clear.

A is a perforated rubber cork which fits the mouth of the burette. B is a Phenix syringe body, the nozzle of which (E) is to be pushed into the hole of the stopper. [In the apparatus sent us by the author, the stopper is much longer and more tapering than that shown in the cut, hence the nozzle of the syringe reaches only partly through the hole in the cork; the balance of the perforation is lined by a small piece of glass tubing, the object being to render the internal calibre unalterable. This is important, since any alteration in two or more successive operations would render the results unreliable.] C is a narrow but stout glass tube, the lower end of which (F) is fused conically, and ground, by the intervention of fine emery and oil of turpentine, into the neck of the syringe nozzle. This glass tube is tightly held in place by a rubber band, H, engaging a twisted-wire arm, G, inserted into the mouth of the tube. D, D is a twisted wire, firmly clasping the syringe barrel at L and M, but having at K a loop through which the tube C may be easily raised. D is so firm and rigid that the tube C is steadily held in the same position.

The twisted-wire attachment, D, is made as follows: Loop the middle of the wire around the syringe, and twist the wires together until a stem about 3¼ inches long is formed, bend the loop at right angles to the stem, and slip over the lower part of the syringe. Now loop the wires around the syringe and back to the starting point, and continue the stem for about 2¼ inches; then loop it around the small tube and cut off neatly. The next thing to do will be to determine the capacity of the ungraduated part of the burette. This is done as follows: Fill the burette brimful with distilled water, open the valve in the nitrometer, and force the cork firmly into the top of the burette. Now close the valve, empty the cup (or syringe) again, open the valve, and allow the water to run from the burette into a tared beaker until it is even with the 0 mark on the burette. The weight of water in grammes equals the capacity in cubic centimeters.

For ordinary use the cup (B) may be graduated by weighing or measuring distilled water into it, but greater accuracy may be obtained by the use of a pipette. A very convenient pipette may be made in the following manner: Select a piece of medium heavy glass tubing of about $\frac{1}{16}$ inch internal diameter, draw it out to a point, cut off, leaving a small orifice, round the edges by fusion, and curve the drawn-out end. The larger orifice is also somewhat contracted by heating. To graduate this pipette, seal the point with a very small quantity of wax, attach the tube to the scale pan in an upright position, counterbalance and weigh into it 3 Gm. of distilled water; remove the wax, and allow all of the water to flow into a tared beaker, and blow through the pipette to expel water held in the narrow point by capillary attraction. About 2.968 Gm. will be obtained, leaving 32 Mgm., the amount of water retained in the tube each time it is used. Now draw the capillary orifice full of water, seal, and introduce enough water to make it contain altogether 3.032 Gm. of it, then graduate it by scratching a ring around the tube. If another figure than 32 Mgm. is found, this must be substituted for it.

If the work is carefully done, these pipettes are quite accurate. I have made five measurements with the one I have constructed for my own use, checking each one by weighing. The average error was $\frac{1}{500}$ C.c., the smallest $\frac{1}{1000}$, and the largest $\frac{1}{300}$ C.c.

Preparations of Gluside, or Saccharin.

THREE-FOURTHS of those medical corporations or other official medical bodies of England, Scotland, and Ireland that sent in to the Medical Council suggestions as to additions to the British Pharmacopœia included saccharin, and that substance—now termed "gluside"—appears in the recently published Addendum. Under these circumstances, a list of typical formulas in which gluside takes the place of sugar will be of value.

The dose or quantity of gluside as a sweetening agent is $\frac{1}{300}$ of sugar. The "lump" of sugar of the familiar sugar basin weighs from 150 to 300 grains. The equivalent quantity of gluside clearly will be ½ to 1 grain. One of the largest of ordinary lumps of sugar is not more sweet than a quarter of a grain of gluside; one of the smallest of ordinary lumps would communicate no more sweetness than an eighth of a grain of gluside. The dose of gluside as a medicinal agent must necessarily vary considerably; 5, 10, 15, 20 grains may be administered; 50 and even 80 grains have been given daily without any injurious effect on the system generally.

One grain of gluside will fully sweeten a 6-ounce bottleful of medicine, or 1½ grains an 8-ounce bottleful, giving sweetness equal to that produced by ¾ ounce or 1 ounce of ordinary syrup. The gluside is readily dissolved in these proportions—indeed, 2 grains of gluside may be dissolved, by careful management, in a single ounce of water. Where sweeter fluids are desired soluble gluside, which is extremely readily soluble in water, should be employed. Gluside is soluble in solution of bicarbonate of sodium, with evolution of carbonic acid gas. The latter solution, when warmed and made neutral and evaporated to dryness, yields "soluble gluside" or "soluble saccharin," which is very soluble in water, 100 parts of gluside yielding nearly 113 of neutral "soluble gluside." A stock fluid of the same degree of sweetness as ordinary medicinal syrup, and which may therefore be prescribed in similar quantities, is prepared as follows:

Solutio Glusidi Simplex.—Soluble gluside, 30 grains; distilled water, 1 pint. Dissolve. Each fluidounce contains 1⅞ grains of soluble gluside. Each fluidrachm represents ¼ grain of ordinary gluside. If still stronger stock solutions, and somewhat alcoholic, are desired, the following formulas may be adopted:

Liquor Glusidi A. P. A.—(From the National Formulary of the American Pharmaceutical Association.) Gluside, 512 grains; bicarbonate of sodium, 240 grains; alcohol, 4 fluidounces; water sufficient to produce 16 fluidounces. Dissolve. Each fluidrachm represents 4 grains of gluside.

Elixir Glusidi, B.P.C.—(From the Unofficial Formulary of the British Pharmaceutical Conference.) Gluside, 480 grains; bicarbonate of sodium, 240 grains; rectified spirit, 2½ fluidounces; distilled water, a sufficiency. Rub the gluside and bicarbonate of sodium in a mortar, with ½ pint distilled water gradually added. When dissolved add the spirit, filter, and wash the filter with sufficient distilled water to produce 1 pint of elixir. Each fluidrachm represents 3 grains of gluside.

CONFECTIONS.

Passing now from the modes of including either gluside or soluble gluside in ordinary fluid medicines to the modes of substituting gluside for the sugar hitherto used in the sweetened drugs prescribed by physicians and medical practitioners already mentioned, the following formulas may be followed. Such preparations could be supplied by any chemist and druggist, or be prepared in any properly appointed drug laboratory. They are given in alphabetical order.

Confectio Opii Glusidata Concentrata.—Compound powder of opium, 1 ounce; distilled water, 1 ounce; gluside, 4 grains. Mix. Dose, 2½ to 10 grains. This confection is half the bulk but twice the strength of the official confection. The dose is, consequently, half that of the official confection. One part of opium in 20 parts.

[In our judgment it is unwise to introduce new opium preparations intended as substitutes for some of those now in use, unless the strength in opium and the dose are as nearly as possible preserved the same.—Ed. Am. Drugg.]

Confectio Piperis Glusidata Concentrata.—Black pepper in fine powder, 2 ounces; caraway fruit in fine powder, 3 ounces; tragacanth in fine powder, ¼ ounce; gluside, 22 grains; distilled water, 4¼ fluidounces. Rub them well together in a mortar. Dose, 30 to 60 grains. Absence of sugar (honey) renders the above useful when sugar is contra-indicated. It is only half as bulky as the official confection, but it is of double the strength, hence the dose is half that of the official preparation. One part of pepper in 5 parts.

Confectio Scammonii Glusidata.—Resin of scammony, in powder, 6 ounces; ginger, in fine powder, 3 ounces; oil of caraway, ¼ fluidounce; oil of cloves, ⅛ fluidounce; gluside, 8 grains; tragacanth, in powder, ¾ ounce; distilled water, 10¼ fluidounces. Mix. Dose, 10 to 30 grains. This confection is of the same strength as that of the confection of scammony of the British Pharmacopœia, hence the dose is the same. It should be recently prepared. One part of scammony resin in about 3 parts.

Confectio Sennæ Glucidata Concentrata.—Senna, in fine powder, 7 ounces; coriander fruit, in fine powder, 3 ounces; figs, 12 ounces; tamarind, 9 ounces; cassia pulp, 9 ounces; prunes, 6 ounces; extract of licorice, 1 ounce; gluside, 44 grains; distilled water, a sufficiency to make 37½ ounces. Boil the figs and prunes gently with some distilled water in a covered vessel for four hours, then mix the tamarind and cassia pulp, digest for two hours, and rub the softened pulp of the fruits through a hair sieve, rejecting the seeds and other hard parts. To the pulped product add the extract of licorice, and dissolve with the aid of heat; while the mixture is still warm add to it gradually the already mixed senna and coriander powders and gluside, and mix the whole thoroughly, making the weight of the resulting confection 37½ ounces, either by evaporation or by the addition of more distilled water. Being twice as strong as the old confection, only half of the old dose need be swallowed. Dose, 30 to 60 grains.

Confectio Sulphuris Glusidata.—Sublimed sulphur, 4 ounces; acid tartrate of potassium, in powder, 1 ounce; tincture of orange peel, ¼ fluidounce; gluside, 3½ grains; tragacanth, in powder, 50 grains; distilled water, 3½ fluidounces. Mix. This confection would be employed where the sugar of the official confection is contra-indicated. The strength, and therefore the dose, are similar to those of the official confection. Dose, 60 to 120 grains.

Confectio Terebinthinæ Glusidata.—Oil of turpentine, 1 fluidounce; licorice root, in powder, 1½ ounces; gluside, 3 grains; tragacanth, in powder, 15 grains. Mix. This confection is nearly double the strength of the official confection—1 of turpentine in 2½, as against 1 in 4. Hence the diminished dose—40 to 80 grains. It should be freshly prepared, for the turpentine is liable to evaporate.

ELIXIRS AND EMULSIONS.

Elixir Cascaræ Sagradæ Glusidatum.—Tincture of fresh orange peel, 2 fluidounces; rectified spirit, 1 fluidounce; cinnamon water, 3 fluidounces; elixir of gluside (B. P. C.), 6 fluidounces; liquid extract of cascara sagrada, 8 fluidounces. Mix. Dose, 15 minims to 2 fluidrachms. This is the B. P. C. formula, with elixir of saccharin B. P. C. (*vide ante*) in place of syrup.

Emulsio Olei Morrhuæ Glusidata (B. P. C.).—Cod-liver oil, 8 fluidounces; the yolks of two eggs; tragacanth, in powder, 16 grains; elixir of gluside, 1 fluidrachm; simple tincture of benzoin, 1 fluidrachm; spirit of chloroform, 4 fluidrachms; essential oil of bitter almonds, 8 minims; distilled water, sufficient to produce 16 fluidounces. Measure 5 fluidounces of the distilled water. Place the tragacanth in powder in a dry mortar, and triturate with a little of the cod-liver oil; then add the yolks of eggs and stir briskly, adding water as the mixture thickens. When of a suitable consistence, add the remainder of the oil and water alternately, with constant stirring, avoiding frothing. Transfer to a pint bottle; add the elixir of gluside, tincture of benzoin, spirit of chloroform, and oil of almonds, previously mixed; shake well and add distilled water, if necessary, to make the product measure 16 fluidounces. Dose, 2 to 8 fluidrachms.

Emulsio Olei Ricini Glusidata.—Castor oil, 1 fluidounce; gum acacia, in powder, 180 grains; essential oil of bitter almonds, 2 minims; oil of cloves, 1 minim; gluside, 1 grain; distilled water, sufficient to make 4 fluidounces. Rub the gluside with the gum and the essential oils in a mortar. Add ½ ounce of the water at once. Add the castor oil by degrees, stirring, and the remainder of the water in the same manner. Dose, ½ to 2 fluidounces. This is Gerrard's formula. In both the above emulsions the taste of the oil is disguised.

GARGLES.

Obviously any gargle may have gluside added at discretion. For example:

Gargarisma Aluminis Glusidatum.—Aluminis, 20 grains; sol. glusid. simp., 4 drachms; aq. destill., ad ℥ij. Mix.

MIXTURES.

Mistura Amygdalæ Glusidata.—Compound powder of almonds, glusid. (see below), 1 part; distilled water, 10½ fluid parts. Rub the powder, with a little of the water, into a thin paste, then add the remainder of the water, and strain through muslin. Dose, 1 to 2 fluidounces. This corresponds in strength with the official Mistura amygdalæ, but contains no sugar. It should not be kept more than a few days.

Mistura Cretæ Glusidata.—Prepared chalk, ¼ ounce; gum acacia, in powder, ¼ ounce; simple solution of gluside, ½ fluidounce; cinnamon water, 7½ fluidounces. Triturate the chalk and gum acacia with the cinnamon water, then add the simple solution of gluside and mix. Dose, 1 to 2 fluidounces. This corresponds in strength with the official Mistura cretæ, but contains no sugar.

Mistura Spiritus Vini Gallici Saccharinata.—French brandy, 4 fluidounces; cinnamon water, 4 fluidounces; the yolks of two eggs; simple solution of gluside, ½ fluidounce. Rub the yolks in a mortar, then add the cinnamon water, spirit, and simple solution of gluside. Dose, 1 to 2 fluidounces. This is the official "mixture," with simple solution of gluside in place of sugar.

Gluside will not usefully take the place of sugar in the official Mistura ferri composita, or Mistura guaiaci, for it is not to be expected that gluside will prevent oxidation. If the sugar in these official mixtures is objectionable in certain cases, other preparations of iron or of guaiacum must be prescribed. In "mixtures" the "sol. glusid. simp." takes the place of a similar volume of the official syrupus, but for every fluidounce of simple solution of gluside 1½ grains of soluble gluside may be prescribed, or even the same amount of gluside itself; for, as already stated, 1½ grains of gluside will fully sweeten an 8-ounce bottleful of medicine.

POWDERS.

Pulvis Amygdalæ Compositus Glusidatus.—Sweet almonds, 8 ounces; gum acacia in powder, 1 ounce; gluside, 6 grains. Steep the almonds in water until their skins can easily be removed, and, when blanched, dry them thoroughly with a soft cloth, and rub them in a mortar to a smooth consistence. Mix the gum and the gluside, and, adding them to the almond pulp generally, rub the whole to a coarse powder. Keep it in a lightly covered jar. This preparation is about one-third stronger than the official Pulvis amygdalæ compositus. It is used in making Mistura amygd. co. glusid.

Pulvis Cretæ Aromaticus Glusidatus Concentratus. (Synonym: *Conf. Aromat. Glusid. Concent.*).—Cinnamon bark, in powder, 3 ounces; nutmeg, in powder, 3 ounces; saffron, in powder, 4 ounces; cloves, in powder, 1½ ounces; cardamom seeds, in powder, 1 ounce; gluside, 36½ grains; prepared chalk, 11 ounces. Mix them thoroughly, pass the powder through a fine sieve, and finally rub it lightly in a mortar. Keep it in a stoppered bottle. If a product of bright color be desired, the saffron may previously be moistened and triturated with a little water or spirit, or the fresh and faintly damp mixture may be subjected to considerable pressure in the triturating process. The preparation is practically double the strength of the official Pulvis cretæ aromaticus; the dose, consequently, is one-half. Dose, 5 to 30 grains.

Pulvis Cretæ Aromaticus cum Opio Glusidatus Concentratus (Synonym: *Conf. Aromat. c. Opio Glusid. Concent.*). —Concentrated glusidated aromatic powder of chalk, 4¾ ounces; opium, in powder, ¼ ounce. Mix. This preparation, through the displacement of sugar by gluside, is double the strength of the official Pulvis cretæ aromaticus cum opio; the dose consequently is one-half. Dose, 5 to 20 grains.

Pulvis Glycyrrhizæ Compositus Glusidatus Concentratus.—Senna, in fine powder, 2 ounces; licorice root, in fine powder, 2 ounces; fennel fruit, in fine powder, 1 ounce; sublimed sulphur, 1 ounce; gluside, 9 grains. Mix them thoroughly, pass the powder through a fine sieve, and finally rub it lightly in a mortar. Dose, 15 to 30 grains. This preparation is double the strength of the official Pulvis glycyrrhizæ compositus.

Pulveres Santonini.—Santonin, 240 grains; gluside, 2 grains; scammony, in powder, 180 grains; bicarbonate of sodium, 60 grains; sugar of milk, 240 grains. Rub together the santonin, gluside, and sugar of milk in a mortar, add the other ingredients, mix and sift. Dose: None to be given to children under six months old; from six months to two years, 2 grains; from two to five years, 1 grain for each year; five to eight years, 6 grains; eight to twelve years, 7½ grains; at bedtime.

SYRUP SUBSTITUTES.

Glusyrupus Aurantii.—Tincture of orange peel, 1 fluidounce; simple solution of gluside, 7 fluidounces. Mix. This preparation is equivalent in sweetness to the official Syrupus aurantii, the sugar in the latter being displaced by gluside. Dose, 1 fluidrachm.

Glusyrupus Chloral.—Hydrate of chloral, 80 grains; distilled water, 1¼ fluidrachms; simple solution of gluside, a sufficiency. Dissolve the hydrate of chloral in the water, and add the simple solution of gluside until the mixed product measures 1 fluidounce. This preparation has the same strength (10 grains of chloral in 1 fluidrachm) as the official Syrupus chloral, and the dose is the same. Dose, ½ to 2 fluidrachms.

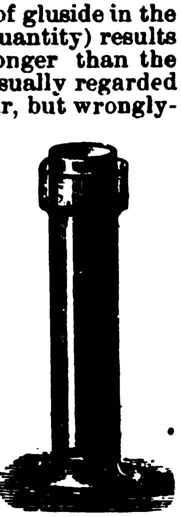
Glusyrupus Tolutanus.—Take of balsam of tolu 1¼ ounces; soluble gluside, 52 grains; distilled water, a sufficiency. Boil the balsam in one pint of the water for half an hour in a lightly covered vessel, stirring occasionally. Then remove from the fire, and filter the solution when cold. Dissolve the soluble gluside in a pint and a half of the water, and mix the two solutions. If necessary add distilled water so that the product shall measure 48 fluidounces. Dose, 1 fluidrachm (same strength as the official Syrupus tolutanus).

Glusyrupus Zingiberis.—Strong tincture of ginger, 6 fluidrachms; simple solution of gluside, sufficient to produce 20 fluidounces. Mix with agitation. Dose, 1 fluidrachm. This preparation is of the same strength as the official Syrupus zingiberis.

EFFERVESCING PREPARATIONS.

Sodii Citro-Tartras Effervescens Glusidatus.—Bicarbonate of sodium, in powder, 17 ounces; tartaric acid, in powder, 9 ounces; citric acid, in powder, 6 ounces; gluside, 8 grains. Mix the powders thoroughly, place them in a dish or pan of suitable form heated to between 200° and 220° F. (93.3° and 104.4° C.), and when the particles of the powder begin to aggregate, stir them assiduously until they assume a granular form; then, by means of suitable sieves, separate the granules of uniform and most convenient size, and preserve the preparation in well-closed bottles. Dose, 50 to 90 grains, or one to two small teaspoonfuls. The presence of only 8 grains of gluside in the place of 5 ounces of sugar (in the above quantity) results in this preparation being one-sixth stronger than the official Sodii citro-tartras effervescens, usually regarded as the official substitute for the popular, but wrongly-termed, granular "citrate of magnesia," consequently the dose is slightly less.—*British Medical Journal.*

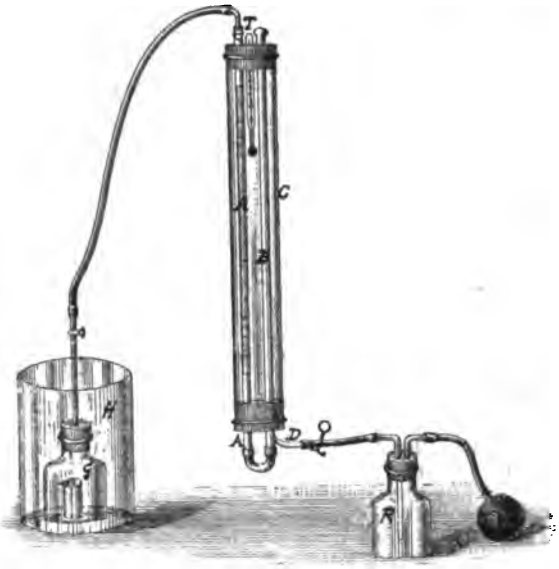
CYLINDER WITH OVERFLOW.



For the purpose of taking the specific gravities of liquids by means of hydrometers or areometers, Frühling and Schulz recommend to use cylinders with overflow (see cut). The utility of these is self-evident, since every one who has worked with hydrometers has experienced the disagreeable consequences of the spilling (by overflow) of acids, caustic alkalies, and other particular liquids.—After *Zeitsch. f. angew. Chem.*

NEW GASOMETRIC APPARATUS.

A. Baumann contends that the usual mode of employing nitrometers or other gas-measuring contrivances is liable to considerable error, chiefly on account of the variability of the volume, due to unequal temperatures of the air currents surrounding the vessels in which the gas is contained. He objects, among other things, to Lunge's apparatus, and particularly to Lunge's gas volume-meter, and lastly describes an apparatus constructed upon what he believes correct principles. This apparatus is here illustrated. The gas-measuring tube proper is a graduated burette, A—the end of which is incorrectly drawn in the cut—and the burette is connected, by a piece of tubing, with an open tube, B. Both of these tubes, together with a thermometer, are enclosed in a larger tube, C, in the manner shown, the tube being filled with water. The generating flask G is likewise placed in water. The tube C is supported by a clamp not shown in the cut.



When an analysis is to be made, both the vessel H and the tube C are filled with water of the same temperature. The tube C is connected at the bottom with a reservoir, R, containing distilled water—if this is used as measuring liquid. By means of the bulb and stopcock the quantity of water in the tube B required to be exactly on a level with the liquid contained in A is easily regulated.

If the burette A is to be used as such alone, it is only necessary to disconnect it above and below. It need not be taken out of the fittings in the tube C at all. The author advises to keep two or three such apparatuses ready for use. This will enable the operator to undertake a new analysis while the gases evolved in the preceding one acquire the normal temperature.—*Zeitsch. f. angew. Chem.*

Physicians' Testimonials.

The New York *Evening Post* of June 23d says, editorially:

The *Pester Lloyd*, one of the most prominent journals of Hungary, devotes a good deal of space in its issue of June 4th to the subject of the adulteration of Hungarian wines in America, and naturally singles out Mr. Lorenz Reich as easily first among his fellow-adulterators. The writer, who is in a position to know all the facts in the case, explains to the Hungarian public why it is that Reich continues to ply his trade, although it has been proved again and again that "in eight years he has not received through the Custom-house a single bottle of Hungarian wine." The tale he tells is one that ought to bring the blush of shame to the cheeks of the eminent physicians who so glibly testified to the purity and excellence of Reich's stuff, for their gullibility reflects discredit not only on their profession, but serves to bring well-merited foreign censure on what is notoriously one of the weakest points in the national character. If it is incumbent upon any class of men to rise superior to the American habit of certifying to the excellence of persons or things of unknown or dubious character, it is upon physicians. Surely they ought to exercise the prudence which prompts any ordinarily careful man to view with suspicion the motives of an unknown donor of a gift in return for which a public "testimonial" is expected. It must be borne in mind, moreover, that Tokay is not a wine which is drunk like Rhine wine or claret, or even champagne. It is no exaggeration to say that thousands of poor people buy a bottle of Tokay as a last resource in the illness of a relative, upon the advice of a physician; and to be instrumental in placing before the sick and dying the miserable decoction which goes by the name of Tokay is to incur a responsibility from which any man with a conscience may well shrink.

Tasi, a South American Galactagogue.

A South American asclepiadaceous plant, *Morrenia brachystephana* Grisebach (first described by this botanist in his "Plantæ Lorenzianæ," No. 575), has long been reputed among the natives of Argentina as an excellent galactagogue. Attention has recently been drawn to it in Europe by a paper submitted to the German Chemical Society (*Berichte*, 1891, p. 1849), by Dr. Pedro Arata and Carl Gelzer, on the chemistry of the plant. Dr. Arata, who is a member of the National Board of Health of the Argentine Republic, has made systematic experiments with the *sap* of the plant during the past eighteen months.

He reports the case of a woman whose milk gave out seventy days after the birth of a boy. An infusion of the milk sap of the plant was administered to her, when, after a very short time, an abundance of milk was secreted, so that the child could be fed without the aid of a nurse. The average daily dose administered was 30 Gm. (about 1 ounce). The infusion prepared from the sap is yellowish and slimy, and has a sweetish taste with a bitterish after-taste. It is not disagreeable to take, but when first administered causes a slight nausea and a little headache, also an increased perspiration, but no other untoward symptoms.

The plant is known to the natives of Argentina under the name of *tásis*. [Hieronymus, in "Plantæ diaphoricæ Floræ Argentinæ," 8vo, Buenos Ayres, 1882, p. 177, has *tasi*.—Ed. Am. Drugg.]

The plant grows all over Argentina, and is now chiefly cultivated on account of the fine silky hairs contained in the fruits, which heretofore were used as tinder by the Indians and gauchos, but are now turned into "vegetable silk." The rhizome and fruit of this plant contain an abundance of a milky juice, which is used by the natives as a domestic remedy in various diseases, but has an especial reputation as a milk-maker. The authors of the paper above quoted state that elaborate reports on this property of the plant are contained in the "Boletin oficial de la Exposicion national de Corboda en 1871," p. 63 sqq.

There is another species of tasi found in Argentina, which is *Morrenia odorata* Lindley. According to Hieronymus (*l. c.*), it is also called *doca*. The fruit capsules of this exude an aromatic resin, whence its name.

Luminous Paints.

For orange luminous paint, 46 parts varnish are mixed with 17.5 parts prepared barium sulphate, 1 part prepared India yellow, 1.5 parts prepared madder lake, and 38 parts luminous calcium sulphide.

For yellow luminous paint, 48 parts varnish are mixed with 10 parts prepared barium sulphate, 8 parts barium chromate, and 34 parts luminous calcium sulphide.

For green luminous paint, 48 parts varnish are mixed with 10 parts prepared barium sulphate, 8 parts chromium oxide green, and 34 parts luminous calcium sulphide.

A blue luminous paint is prepared from 42 parts varnish, 10.2 parts prepared barium sulphate, 6.4 parts ultramarine blue, 5.4 parts cobalt blue, and 46 parts luminous calcium sulphide.

A violet luminous paint is made from 42 parts varnish, 10.2 parts prepared barium sulphate, 2.8 parts ultramarine violet, 9 parts cobaltous arsenate, and 36 parts luminous calcium sulphide.

For gray luminous paint, 45 parts of the varnish are mixed with 6 parts prepared barium sulphate, 6 parts prepared calcium carbonate, 0.5 parts ultramarine blue, 6.5 parts gray zinc sulphide.

A yellowish-brown luminous paint is obtained from 48 parts varnish, 10 parts precipitated barium sulphate, 8 parts auripigment, and 34 parts luminous calcium sulphide.

Luminous colors for artists' use are prepared by using pure East India poppy oil, in the same quantity, instead of the varnish, and taking particular pains to grind the materials as fine as possible.

For luminous oil-color paints, equal quantities of pure linseed are used in place of the varnish. The linseed oil must be cold pressed, and thickened by heat.

All the above luminous paints can be used in the manufacture of colored papers, etc., if the varnish is altogether omitted, and the dry mixtures are ground to a paste with water.

The luminous paints can also be used as *wax colors for painting on glass* and similar objects, by adding, instead of the varnish, 10 per cent more of Japanese wax, and one-fourth the quantity of the latter of olive oil. The wax colors prepared in this way may also be used for painting upon porcelain, and are then carefully burned without access of air. Paintings of this kind can also be treated with water-glass.—*Ztschr. Oest. Ap. Ver.*

Highly Active Pepsin.

J. L. Webber is the patentee of a new process of preparing pepsin of a high degree of purity and extraordinary digestive power. This process is described in the *Pharm. Centralhalle* of June 4th.

Animal stomachs are macerated in acidulated water, the solution is clarified by the intervention of sulphurous acid, the clear liquid separated from the sediment and saturated with sodium sulphate, which causes the pepsin to separate, while the accompanying peptones remain in solution. The separated pepsin is dissolved in water acidulated with hydrochloric acid, and the sodium sulphate adhering to it removed by dialysis, whereupon the remaining liquid is evaporated to dryness.

The resulting product is readily soluble, and is stated to be free from any disagreeable odor, non-hygroscopic, and to keep well. One grain of it is said to dissolve 10,000 grains of albumen, when tested by the process given in the National Formulary.

Antinervin.

About two years since, under the descriptive name "antinervin," a preparation was introduced into medicine which was understood to be salicylbromanilide, or bromacetanilide, in which the acetyl radical had been replaced by a salicyl group. Subsequently it was described as a combination of salicylanilide with bromacetanilide. This has led to an examination of the preparation by Dr. Reuter, with a view to determine its exact nature (*Pharm. Zeit.*, June 24th, 303). From the results obtained in several analyses of old and new samples, Dr. Reuter has arrived at the conclusion that antinervin is neither salicylbromanilide nor a combination of bromacetanilide with salicylanilide, but a mixture having the average composition of 25 parts each of ammonium bromide and salicylic acid and 50 parts of acetanilide.—*Pharm. Journ.*

Practical Notes on Metallic Sodium (also Potassium and Lithium).

The following notes are abstracted from a paper presented by Max Rosenfeld to the German Chemical Society (*Berichte*, 1891, p. 1658).

1. *Preserving Sodium so that it will retain its metallic lustre.*—Metallic sodium which is kept under petroleum becomes covered with a crust and loses its metallic lustre. Such sodium may be cleaned and preserved bright, and fresh bright sodium may also be preserved, in the following manner:

Transfer the metal into a mixture of 1 part of amylic alcohol and 3 parts of petroleum; rub it with a rag soaked in the same liquid until it has acquired a silver-white color; then place it for a short time in petroleum containing 5 per cent of amylic alcohol; afterwards wash it with pure petroleum, and finally preserve it in petroleum containing 0.5 to 1 per cent of amylic alcohol. This treatment renders the sodium bright and shining, and causes it to show at the surface, after a while, a crystalline tracing. When kept for some time in this manner, it becomes covered with a yellowish, transparent coating of sodium-amylate, which may, however, easily be rubbed off by filtering paper.

Potassium and lithium may be preserved in the same manner.

2. *Sodium Amalgam.*—On bringing purified and bright sodium in contact with metallic mercury, they combine with appearance of fire. The operation is best conducted as follows:

Select a crucible, and provide it with cover having a hole in it, into which a stopper is inserted carrying a pointed wire which reaches to the bottom of the crucible. Place the requisite quantity of mercury in the latter, fasten the entire piece of sodium required to the point of the wire, and immerse the sodium into a mixture of 1 part of amylic alcohol and 9 parts of petroleum. As soon as the metal has assumed a silver-white color, immerse it, either at once or after rapid wiping with filtering paper, into the mercury. Since the crucible is covered by the lid at the same time as the sodium comes in contact with the mercury, only a small quantity of mercurial vapor is expelled from underneath the lid.

3. *Liquid Alloy of Sodium and Potassium* (melting point at 6° C.).—This is best obtained by placing a piece of clean, bright sodium in petroleum mixed with 10 per cent of its weight of amylic alcohol, and rubbing a piece of bright potassium against it (the sodium). The liquid alloy then forms of its own accord and collects in drops at the bottom.

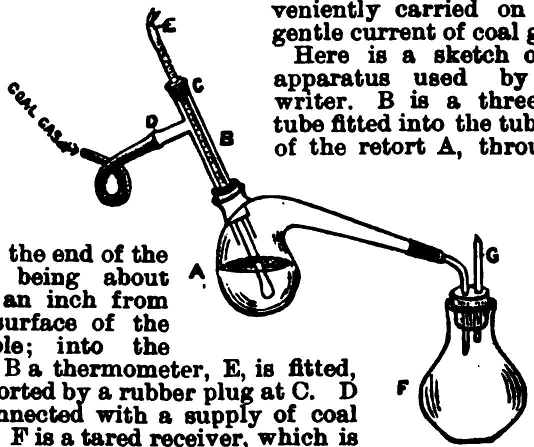
4. *Preparation of Sodium Sulphide.*—When metallic sodium and sulphur are triturated together, they combine with explosion, burning pieces of both elements being scattered about. The combination may be brought about more quietly by triturating 1 Gm. of metallic sodium and 3 Gm. of common salt to a very fine powder, and then mixing this with 0.7 Gm. of flowers of sulphur intimately, but without the least pressure. At the moment when the substances are intimately mixed, the sodium and sulphur combine, under fire, the products being the yellow polysulphuret and the flesh-colored sodium monosulphuret.

DETERMINATION OF OIL OF TURPENTINE IN PAINTS, ETC.

While much information has been published with regard to the composition and fabrication of various paints and varnishes, there appears to have been very little done in the way of detailing methods of their analysis. The cause of this may be put down to the complicated nature of these substances, together with the many little difficulties that attend the proximate estimation of their constituents. In a recent analysis of a sample of an enamel, the writer found the distillation method here described to answer well for the determination of turpentine, leaving the residuum of linseed oil, gum, and pigment in a fit state for further examination.

When paints or varnishes are distilled in air, it is known that oxidation products are formed giving a low result for turpentine, while the residue of linseed oil, etc., is rendered useless for further examination, owing to the formation of the inert linoxyn, etc. In ordinary cases the distillation may be conveniently carried on in a gentle current of coal gas.

Here is a sketch of the apparatus used by the writer. B is a three-way tube fitted into the tubulure of the retort A, through a cork, the end of the tube being about half an inch from the surface of the sample; into the part B a thermometer, E, is fitted, supported by a rubber plug at C. D is connected with a supply of coal gas. F is a tared receiver, which is to be kept in a basin containing cold water. G is a small tube for allowing the gas to escape. About 150 Gm. of the sample are weighed into the retort, and connected to the tared receiver as in the sketch. The retort is now suspended in a glass air bath (a beaker with its bottom cut out is convenient) over wire gauze on a tripod stand. Before proceeding with the distillation, a gentle current of coal gas is made to pass through the apparatus, and, when all the air has been driven out, the issuing gas is lighted at G, and the gas turned down until the flame is about the size of a pea. A rush of gas must be avoided, or there would be a loss of oil of turpentine. A small flame is now placed under the retort, and the distillation proceeded with gently. The turpentine should drop into the receiver without affecting the gas issuing at G. The temperature necessary for the complete expulsion of the oil may be about 220° C. When all the turpentine has come over, detach F and plug the end of the retort with a cork, leaving the gas still turned on until it be required to examine the residuum, which is thus kept free from oxidation.—H. J. Phillips in *Chem. News.*



Remedy for Warts.

Speaking of secret remedies, there is a specialist of warts in Berlin who in removing warts is eminently successful. His secret remedy consists in Fowler's solution, which he gives, in weekly increasing doses, to adults 2 drops three times a day; to children, ½ drop three times a day.

Rossbach's Expectorant Mixture.

Apomorphinæ Hydrochloratis	1 gr.
Morphinæ Hydrochloratis	⅙ "
Acidi Hydrochlorici Dil.	10 gtt.
Aquæ Destillatæ	5 fl. oz.

Dose, a tablespoonful every two, three, or four hours.
[The diluted hydrochloric acid is evidently superfluous.]

Rapid Estimation of Nitrates in Water.

In place of the present somewhat cumbersome methods in vogue for detecting the presence of, and estimating (approximately) the quantity of, nitrates in drinking water, George Harrow (in *Jour. Chem. Soc.*) proposes a new method, which is based upon Griess' color test for nitrous acid, the nitrate being for this purpose previously reduced by zinc dust. The author says:

The method which I have devised for this purpose is founded on Griess' extremely sensitive nitrite test (alpha-naphthylamine and sulphanilic acid), and depends on the conversion of nitric acid into nitrous acid by means of zinc dust; that this conversion is a partial one, and that other products—ammonia and hydroxylamine—are formed, does not affect the delicacy of the test or the accuracy of the determination.

The test solution used consists of

Alpha-Naphthylamine	1	Gm.
Sulphanilic Acid	1	Gm.
Ordinary strong Hydrochloric Acid	25	C.c.

dissolved in about 200 C.c. of distilled water, boiled with a small quantity of animal charcoal, filtered, and made up to 500 C.c.

There are also required standard solutions containing

1.0 part N as nitrates per 100,000
0.1 " " " " " "
0.01 " " " " " "

To prepare these solutions, 0.721 Gm. of pure and dry potassium nitrate is dissolved in 1 liter of water; the resulting solution contains 10 parts of N per 100,000, and may be readily diluted to the strength required. If many water analyses are to be made, it is as well to make up a quart of each of the standards.

A small quantity of zinc dust is also required, contained in a wide-mouthed bottle, into the cork of which a miniature spatula, constructed of brass or platinum foil, should be fixed.

The process is conducted as follows: Fifty C.c. of each water to be tested—and as many as four estimations may readily be conducted at the same time—are placed in beakers (100 C.c. contents) side by side on a sheet of white paper, and with them, in three similar beakers, 50 C.c. of each of the standard nitrate solutions; to each beaker are now added 10 C.c. of the test solution, and afterwards a very small quantity of zinc dust (7 to 8 Mgm.) by means of the miniature spatula; the quantity added should be approximately the same in each case, and I find that there is no difficulty in effecting this. If nitrates be present in the waters a more or less intense pink color will make its appearance, and this color may be compared with that produced in the three standard nitrate solutions, after the lapse of fifteen minutes; a rough approximation to the truth is obtained in this first experiment.*

To get an accurate result the water must be diluted until the color produced is very nearly like that given by one of the standards; perhaps the greatest accuracy may be obtained with the most dilute standard, and, if it be used, a hundredfold dilution of the water to be tested is frequently advisable; the necessary dilution is, of course, indicated by the first experiment.

The diluted waters are again tested against standards 0.1 or 0.01, and, after fifteen minutes, the colors carefully compared in Nesslerizing cylinders of equal calibre, which may be conveniently graduated at the side. The standard solution occupying 60 C.c. in one cylinder, the water tested is run into the other until the depth of color appears to be equal; a reading is then made of the quantity necessary. Say 45 C.c. were employed: then 45 : 60 :: 0.1: x (= 0.133); and supposing the water to have been ten times diluted, it would contain 1.33 parts nitrogen as nitrates and nitrites.

The advantages of the process are its rapidity, simplicity, and ease of execution, and the small quantity of water required for analysis. Twenty C.c. are sufficient for the purpose, and enable one to make several determinations.

The only precaution necessary, so far as I have observed, is to avoid the addition of large quantities of zinc dust, which would decolorize the solution.

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* If *nitrites* are present the pink color will, of course, appear without the addition of zinc dust: Griess' test.

The Russian Platinum Mines.

All the platinum of Russia comes from one district, the government of Perm. In 1885 the output amounted to 110,635 ounces, and in 1886 to 184,336 ounces. Hitherto it has only been found in alluvial deposits and is always associated with gold. The proportion of the two materials varies greatly, the platinum sometimes being in greater quantity than the gold, in other places not constituting above 1 per cent. The former deposits are the more profitable to work. The most important of these distinctly platiniferous deposits occur in the district of Nijni-Taguil, near the watershed of the Urals.

All the platinum-bearing streams of this locality decend from Mount Solovskaia, which is composed of a serpentine rock. The rivers have greatly exceeded their present size in former times, or else, which is more probable, have shifted their course; for the wide valleys in which they flow contain alluvial deposits of considerable extent, which are exploited for platinum, and to a less extent for gold. Between Mount Solovskaia and the diorite mass of Mount Blanche the surface is covered with rounded bowlders of serpentine and peridotite rock. As these bowlders decompose under the action of the air, they form a sand or gravel from which the metal can be profitably extracted. This is similar to what takes place in the weathering of the diamond-bearing peridotite rock of Kimberley, which is exposed to the disintegrating action of the atmosphere before being washed for diamonds. The platinum of the alluvial deposits occurs in grains, or pound of 10 Kgm. weight. The gravel often contains ½ ounce per ton of platinum, but can be profitably worked for 1/10 ounce. The deposit near the banks of the river Martiane consists of a serpentine conglomerate, and is from 4 to 5 meters in thickness. Above is a thickness of 23 to 24 meters of barren ground, chiefly clay. Most of the alluvial auriferous deposits in which platinum is found are in the neighborhood of peridotite rock, or of serpentine rock formed by the partial alteration of the peridotite. Thus the river Mioss takes its source from a mountainous district mainly composed of serpentine rock, and accordingly the auriferous deposits near the head of the river are rich in platinum, but further down stream, as the serpentine formation is left behind, the gold becomes less platiniferous. Small nuggets of platinum are sometimes found embedded in pieces of serpentine, of peridote, and of chrome iron ore, all constituent minerals of the peridotite rock, which there is good reason, therefore, to regard as the true mother rock of the platinum. The richest deposit of the Nijni-Taguil district is that of Avrarinski, extending for a length of 2 Km., 20 to 60 meters wide, and of a thickness of 4 to 5 meters. Here the platinum is found to the amount of 4½, 5, and sometimes even 9 ounces per ton. The metal contains a small proportion of gold, about 0 26 Gm. per kilo, which is separated by amalgamation. The crude platinum left contains about 90 per cent of pure platinum. From October, 1886, to August, 1887, the production at Avrarinski was 40,475 ounces. The working of these deposits is to a large extent sublet by the proprietors to the peasants of the district, who are paid by the weight of metal obtained. They construct their own washing and other machinery, which is made of wood and is of a very crude description. The conditions with regard to cost of living, wages, and so forth, are of course very different from those obtaining in new countries, such as South Africa, where the precious metals are exploited.

Sometimes the present beds of the rivers contain sufficient platinum to pay for working, in which case the course of the river is diverted and the water power used for driving the machinery. A large part of the gold-mining of the Urals is likewise carried on under the system of subletting, but where the mother rock—generally quartz or diorite—is worked more expensive plant is required, and the work is carried on by the proprietors of the soil or by companies.

Europhen.

Dr. F. Goldmann communicates to the *Pharm. Zeitung* a note on this new substitute for iodoform.

The substance is prepared under a German patent obtained by the successors of F. Bayer & Co., in Elberfeld, and is isobutyl-orthocresol-iodide—one atom of iodine being in combination with two molecules of isobutylcresol. It is said to be prepared by the action of zinc chloride on a mixture of isobutyl alcohol and orthocresol when heated, and treating the product with an alkaline watery solution of iodine in potassium iodide, chlorinated lime being added, if necessary, to complete oxidation. The europhen is formed as an amorphous precipitate, and on purification is obtained as an amorphous yellow powder, containing about 28 per cent of combined iodine.

Olive oil dissolves 25 per cent of its weight of europhen. Dr. Goldmann describes the properties of the substance at great length, and states that in bactericidal properties one part of it has been found to be equal to five parts of iodoform. It is regrettable that a happier name than "europhen" was not adopted for the substance—"euphorine" is not unknown.—*Chem. and Drugg.*

Copper in Oil of Lemon.

It is a well-recognized fact that oil of lemon which has remained for any length of time in the copper vessels in which it is imported, is liable to become contaminated with this metal, owing to imperfect tinning; but, although occasionally attention has been drawn to this impurity, I do not recollect any method proposed for its elimination.

I have much pleasure, therefore, in giving in detail a process which in my hands has proved successful.

The oil operated upon (6 liters) was part of a parcel which had been accidentally overlooked, and must have been some months in the drum in which it was found. On examination it had all the appearance of oil of bergamot, and being tested gave a distinct copper reaction.

To get rid of the metal without injury to the oil was now the object. Keeping this end in view, I proceeded as follows:

A dilute acid was made, consisting of 1 part of sulphuric acid and 2 parts of water. Several experiments were tried with small quantities of oil, in order to ascertain how much of this dilute acid would be necessary, not only to absorb the copper, but to obtain this result in the most expeditious manner, the quantity finally determined being 1 C.c. dilute acid to 28 C.c. of the oil, or about 15 minims per ounce.

In this proportion the bulk was now treated with dilute sulphuric acid, and shaken together until the green color of the oil disappeared, which was in the course of a few minutes. About 1 liter of water was added, again well shaken, and allowed to stand until separation took place, which was in a quarter of an hour. The acid solution was siphoned off, and put on one side for estimation of copper. The oil was now repeatedly washed with water until perfectly free from acidity, the water siphoned off, and the oil digested with dried sodium sulphate for twelve hours, and filtered through double paper filter. The result was unquestionably good, and, to my mind, the oil appears to be somewhat improved by the treatment. The acid solution which now contained the copper was estimated by the color-titration process, and gave 0.00525 per cent.

As a comparative experiment (in order to see whether dilute sulphuric acid exerted any influence other than that of separating the copper) a sample of the very best oil of lemon was procured from a source which could leave no doubt as to its purity, and this was subjected to precisely the same treatment, with virtually no effect whatever upon the oil.—W. H. McGrath in *Chem. and Drugg.*

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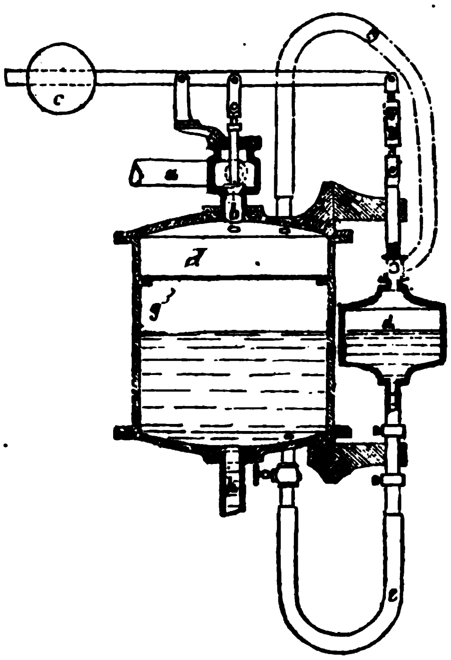
To Abort a Furuncle.—The early application of the ointment of the nitrate of mercury is recommended as an effective means of aborting a boil.

AUTOMATIC FEEDING OF EVAPORATING PANS.

The apparatus here described is applicable not only to closed evaporating pans (vacuum pans), but equally well to open ones. It may be constructed in various ways, but the principles upon which it is constructed are patented by Thomas Gaunt, of Brooklyn, and E. H. Clapp, of Boston.

The liquid which is to be evaporated enters the apparatus *g* through the pipe *a* and the valve *b*. The latter is raised or lowered, and the flow of the liquid thereby cut off or started again in the following manner: The evaporating pan is connected at the bottom, by means of a flexible tube *e*, with a small reservoir *d* suspended at the end of a lever, the other arm of which is counterbalanced by a weight so adjusted that the reservoir shall sink when it becomes filled to a certain level. When the arm carrying the weight *c* rises, the cross-bar closes the valve *b*, and the flow of liquid stops. As soon as evaporation has diminished the bulk of the liquid in the pan, the arm carrying the reservoir rises again and the valve opens.—After *Chem. Zeit.*



Tribromophenol (or Bromol) as an Antiseptic.

C. Rademaker recommends tribromophenol for external use, in form of lotion, ointment, and glycerite.

For Wounds and Ulcers:

Tribromophenol	1 part.
Olive Oil	30 parts.

or,

Tribromophenol	2 parts.
Vaseline	15 parts.

In Diphtheria, as local application:

Tribromophenol	1 part.
Glycerin	25 parts.

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Pistoia Powder.—There is a powder made in a convent near Pistoia, Italy, which is used very extensively as a protective against gout. The following is said by Mr. Chastaing to be its composition:

℞ Bryonia Root,	
Gentian,	
Chamomile	āā Gm. x.
Colchicum Root	Gm. xx.
Betony	Gm. l.

This is made into 365 powders, one of which is taken each day of the year in a full glass of cold or hot water.

Extraction of Caffeine.

P. SIEDLER (*Berichte d. Pharm. Gesellschaft*, 1891, 178) denies the correctness of a recent statement of Mr. Paul (in *Pharm. Journ.*, vol. 50, p. 882) that chloroform is an unsuitable solvent for caffeine when the latter is to be extracted from tea, etc. He finds, on the contrary, that when alcohol is used as menstruum, and when either lime or magnesia is mixed with the powdered tea to set the alkaloid free, the final product is contaminated with either lime or magnesia, as the case may be. On the other hand, if chloroform is used there are only faint traces of mineral matters extracted along with the alkaloid.

He also finds that it is absolutely necessary to reduce the mixture which is to be extracted to the finest possible powder, and to continue the extraction with chloroform at least eight hours.

Alcohol always yields an impure product; hence, if used to assay tea leaves, etc., it furnishes too high a result. Chloroform with magnesia requires a long time of action, but as the product is nearly chemically pure they are preferable.

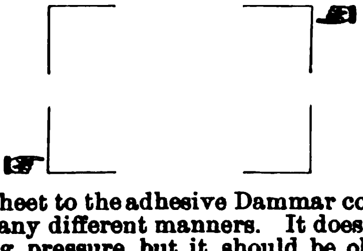
Transferring Prints to Glass.

THE *Lithographer and Printer* gives the following method whereby any chromo print, or even clipping from newspapers, any engraving no matter in how many colors or on what kind of paper, may be transferred to glass by different treatment of the various kinds of paper.

Place the object to be transferred, face downward, upon a larger sheet of Manilla paper; prepare a solution of from 1 to 3 per cent of nitric acid in water, according to thickness and strength of paper and how strong it was sized; ordinary newspapers, and printings and engravings on unsized glazed paper, require even less than 1 per cent nitric acid. One of the purposes of adding nitric acid is to remove the sizing out of the paper. This solution apply with a sponge to the back of your object to be transferred. Be careful not to overdo it; you only want to render the paper soft, but not wet. Continue sponging with this solution until you see the printing plainly—that is, until the paper becomes quite transparent.

Laying down the paper, first adjust the upper right-hand corner to the mark on the plate, hold it there with the tip of your finger, and adjust the left-hand lower corner, but be careful to avoid air bubbles. The practical printer and lithographer, of course, does not need this advice, but to the amateur it is very valuable.

To prepare the glass for transferring proceed as follows: Clean the glass plate thoroughly with alcohol by means of a ball of clean cotton; dry it well; wash it with turpentine; dry it off again; place the glass or plate upon a smooth elastic layer (such as flannel), and with this elastic layer upon a table, or, better yet, upon a rubber blanket in the lithographic hand press. Now coat the cleaned surface with a thin coat of half turpentine and half Dammar varnish; let it dry from ten minutes to one day, according to temperature and thickness of Dammar varnish. The coating should not be allowed to dry entirely; it should be a trifle sticky. Lay the impression face downward upon the glass plate; it is important that neither water nor acid touch the surface during the entire process. To properly lay down the impression, take it up with both hands by holding the left-hand under corner and the right-hand upper corner. Be careful not to get any air bubbles under the sheet. This is best accomplished by marking upon the plate the exact position and size of the sheet, as here shown:



Press the sheet to the adhesive Dammar coat; this may be done in many different manners. It does not require a very strong pressure, but it should be observed that *each and every spot* has to be pressed repeatedly against the plate. We advise the use of a small rubber ruler or a blotter ruler, or any similar instrument. You may also use the hand, but of course not with much safety; or a dabber of cotton or rags, or an ivory paper folder. When the paper sticks quite smoothly to the plate, fan it perfectly dry, and then, with *wet* finger tips, slowly rub off the paper, and the print, of whatever color or nature it may be, will remain on the glass plate. Upon this apply another coat of Dammar varnish containing very little turpentine (with too much turpentine you run the risk of washing the entire picture from the plate again). If all our rules are followed, a splendid picture will be obtained, which can be washed and cleansed with water, the same as a window, as often as desired, and the transfer will not be injured thereby. Such a picture will be visible from outside of the glass, day and night, the same as any glass painting.

The Bromine Compact.

THE bromine compact of 1888, which has hitherto been faithfully observed by the German producers, contains a clause providing that the European bromine makers shall in nowise offer, sell, or ship, and shall use all reasonable precautions to prevent others from offering, selling, or shipping, any bromine or bromine preparations to ports of the United States, the American producers undertaking precisely similar obligations with respect to the export of American bromine into Europe. As regards the rest of the world, the contracting parties refrained from entering into any negotiations, recognizing the impossibility of preventing shippers from buying where they liked; but we believe that the sale of the American bromide outside the United States has been practically confined to some of the South American ports and Japan. By causing their European representatives to solicit offers for bromide, the American producers have practically declared war upon their European competitors, though, as we have explained, they appear to hesitate to receive their fire baptism, in spite of the lightheartedness with which they provoked hostilities.

We have it on good authority that the Stassfurt works hold at this moment a surplus stock of close upon 1,000,000 pounds of bromide—sufficient to supply the world's requirements, medicinal, photographic, and otherwise, for a year or more. This supply, if driven to such a step, they are prepared to use as ammunition, not only for the purpose of scaring the American eagle from European shores, but even of hunting that fowl in his own domain. The heavy stock which has accumulated in Stassfurt is said to have been originally brought together for the purpose of supplying the anticipated requirements of a new process for the extraction of gold, which some two or three years ago appeared likely to create an enormous new outlet for bromine. Under this process the gold ore was brought into contact with bromine in a revolving cylinder, resulting in the formation of bromide of gold, which by a subsequent process was separated, most of the bromine being recovered. Despite the latter circumstance, it was computed that, had the process been successful—which it was not—it would have absorbed from three to four million pounds of bromine per annum.

In the expectation of having to cope with so heavy a demand for its produce, the Stassfurt works accumulated the heavy stock which they are now prepared, if need be, to spend in fighting the enemy.

That it would be unsafe, under the circumstances, to invest in bromide or its preparations at anything like the quotations now ruling is plain.—From *Editorial* in *Chem. and Drugg.*, July 25th.

◆

Acne.—The following is recommended as a useful application in cases of blackheads and pimples disfiguring the faces of the young of both sexes:

℞ Oxide of zinc,
Resorcin,
Starch...āā ʒ i.
Vaseline...ʒ ijss.

M. Apply a thin coating to the affected parts, at bedtime, and rub off with oil the following morning.

The Active Principles of Podophyllum.

Rudolf Kuersten (*Archiv d. Pharm.*, 229, 220) has succeeded in obtaining a purer form of podophyllotoxin, which has heretofore been regarded as the chief active principle of podophyllum, than had been accomplished by Podwyssotski and others. Podwyssotski's podophyllotoxin was an amorphous substance. Kuersten has found that the principle may be obtained from this in a pure, crystalline form by dissolving it in chloroform, and precipitating this solution in fractions by means of petroleum-ether. The pure substance then crystallizes in short prisms melting at about 104° C.

The same substance can be extracted directly from the root in the following manner: Extract the fat from powdered podophyllum root by means of petroleum-ether; then exhaust it with chloroform, remove the chloroform from the liquid extract, and treat the residue with boiling benzol. The latter will yield podophyllotoxin in crystals. But they must be purified by washing them with alcohol of 50 per cent, recrystallizing from benzol and from hot alcohol of 45 per cent. The pure substance melts at 93°-95° C., is but little soluble in cold water, ether, or benzol, easily soluble in acetone or alcohol, moderately soluble in acetic acid. The solutions are neutral. On moistening the crystals with concentrated sulphuric acid a cherry-red color is produced, which passes first to greenish-blue, afterwards to violet. Concentrated nitric acid causes a red color. Millon's reagent produces, in an acetic acid solution of the substance, a distinct red tint. Ferric chloride or bromine has no effect upon it. The substance is strongly lævogyre. Its composition corresponds to the formula $C_{22}H_{24}O_8.2H_2O$.

Kuersten also re-examined the picropodophyllin of Podwyssotski, which is less active than podophyllotoxin. He found it to have the same chemical composition as the latter, and may easily be produced from this by heating its alcoholic solution with ammonia. Its melting point, however, is as high as 227° C.

The same chemist obtained and examined several other constituents from podophyllum, which are described in the same paper, but are here omitted.

The Chemical and Clinical Value of Sterilized Milk.

Professor A. R. Leeds, who is well known as an authority on the subject of milk analysis, reports (in *Amer. Journ. of Med. Science*, June, 1890) that raising the temperature to the boiling point, and still more the retaining of it at that point for a lengthened period, as in sterilization, converts a considerable portion of the soluble into insoluble proteids. The effect of heat is greatest on the galactozymase—the ferment found in raw milk, which has the power of liquefying starch; even raising milk for a moment to the boiling point destroys this ferment action.

Experiments made to contrast the behavior of sterilized milk with raw milk, when subjected to the action of rennet, acid, artificial gastric juice, and pancreatic juice, show that the casein, while not coagulated by the heat, is nevertheless less readily coagulated by rennet, and yields slowly to the action of pepsin and pancreatin. Moreover, a part of the lactalbumen of the milk is coagulated, although only partially so. Its effect, however, is to thicken the milk and intensify its colloidal (ropy or mucilaginous) character. The fat globules are likewise somewhat affected by the heat, and the coagulated proteid matters attach themselves to the fat globules, and probably have an influence in bringing about the difficulty with which the fat is assimilated.

Finally, milk sugar, Dr. Leeds finds, is completely destroyed by long-continued heating, and is probably affected to a certain extent during the interval ordinarily allowed for sterilization. Dr. Leeds thus shows that sterilized milk is less readily and less perfectly digestible than raw milk; and, if sterile milk is sought for, the present desideratum is to obtain it either directly from the animal or by a process not accompanied by such serious drawbacks.

Dr. E. R. Davis (in the same paper) confirms the opinion, which has gradually gained ground, that, while sterilized milk may be useful as a remedy in various bowel complaints, it is not sufficient to sustain life.

If sterilized milk is desired, Dr. Leeds recommends that, after being rendered feebly alkaline with lime water, the milk should be heated to 155° F. for six minutes; or, still better, the treatment, in alkaline solution, with pancreatin at 155°, followed, if not immediately used, by momentary heating to the boiling point. Either of these procedures, Dr. Leeds maintains, will render milk sterile without detracting from its digestibility.—After *Therap. Gaz.*

New Formulas.

A new edition of the Unofficial Formulary of the British Pharmaceutical Conference has just been issued, which contains the following new formulas (weight is avoirdupois; measure is imperial):

COLLODIUM BELLADONNÆ.

Collodion of Belladonna.

Syn.—Emplastrum Belladonnæ Fluidum. [Fluid Belladonna Plaster.]

Alcoholic Extract of Belladonna	5 oz.
Spirit of Camphor	2½ fl. oz.
Dissolve, and add	
Flexible Collodion	sufficient to produce 1 pint.

ELIXIR RHEI.

Elixir of Rhubarb.

Rhubarb Root in 12 powders	5 oz.
Fennel Fruit, bruised	2 "
Glycerin	3 fl. oz.
Refined Sugar	4 oz.
Rectified Spirit, 1 volume Distilled Water, 3 volumes	a sufficient quantity.

Moisten the rhubarb and fennel with 15 fluidounces of the mixed spirits and water, macerate for forty-eight hours, and express. Break up the marc, and add to it sufficient of the same menstruum to furnish, with the previous pressing, 15 fluidounces of clear product. Express again after twenty-four hours' maceration. Unite the liquors, allow to stand for two days, and filter into the sugar and glycerin.

Dissolve without heat; then, if necessary, add sufficient of the above menstruum to make the product measure 1 pint.

Dose, 1 to 3 fluidrachms.

GLYCERINUM BELLADONNÆ.

Glycerin of Belladonna.

Extract of Belladonna	1 oz.
Boiling Distilled Water	1 fl. drm.
Rub together in a warm mortar to produce a smooth paste, and add	
Glycerin	sufficient to produce 2 fl. oz.

UNGUENTUM HYDRARGYRI OLEATI.

Ointment of Oleate of Mercury.

Oleate of Mercury	1 oz.
Simple Ointment	1 oz.

Mix without heat.

VINUM AURANTII DETANNATUM.

Detannated Orange Wine.

Orange Wine	1 gal.
Gelatin, cut small	2 oz.

Macerate for fourteen days, and decant.

[Orange wine is, according to the Brit. Pharm., "wine made in Britain by the fermentation of a saccharine solution to which the fresh (?) peel of the bitter orange has been added.]

VINUM XERICUM DETANNATUM.

Detannated Sherry.

Sherry	1 gal.
Gelatin, cut small	2 oz.

Macerate for fourteen days, and decant.

Note on Sandalwood.

SANDALWOOD has been known in India from the highest antiquity; it is mentioned under the name "chandanna" in the "Nirukta," or writings of Yaska, the most ancient Vedic text known, dating the fifth century B.C. At that time, and for long after, it was specially utilized as a perfume, as well as in burial rites either to embalm the dead or to feed the funeral pile. Even now this wood is used for the same purpose in India, and the honor rendered to the dead is proportioned to the number of logs of sandalwood upon the pile.

The Greeks and Romans seem not to have been acquainted with sandalwood. In any case it is not mentioned in their writings, and the first European writer who speaks of it is Constantinus Africanus, of Salerno, in the eleventh century. In the fifteenth, Ebn Serapi, surnamed Serapion the Younger, mentions three kinds—red, yellow, and white.

Already at this time the three kinds of sandalwood were indicated as being kept by the apothecaries, but it was not until later that the true medicinal properties of the wood were known. In 1750 Dutch travellers visiting the Moluccas brought back and communicated to Rumphius, of Rotterdam, a remedy used by the natives against blennorrhagia, which consisted of a maceration of disintegrated sandalwood. Rumphius studied this product, and it was he who first gave, in his work entitled "Herbarium Amboinense," a detailed description of *Santalum album.*

However, the favor accorded at first to sandalwood was of short duration, and as a medicine it had fallen completely into oblivion, when in 1865, in the United States, Dr. Henderson, in order to avoid the disagreeable repetitions and intestinal disturbances that accompany the administration of copaiba and cubebs, thought of substituting these by oil of sandalwood. The experiments made by him in this direction having been crowned with success, he communicated the results obtained to the *Medical Times and Gazette* of June 3d, 1865.

In the month of July following, mention was made in the Société de Chirurgie of the employment of oil of sandalwood in blennorrhagia. At that time Dr. Panas made some experiments with capsules containing 40 Cgm. each in the Lariboisière hospital, and on the 20th of September of the same year he communicated to the Société de Chirurgie the results obtained, stating that oil of sandalwood is very well tolerated by the most delicate stomachs, and does not occasion any disturbance either of the digestive canal or of the kidneys. Some months later Dr. Simonet confirmed the statements made by Dr. Panas.

Formerly three kinds of sandalwood were recognized:

(1) *Red Sandalwood,* from *Pterocarpus Santalinus* (Leguminosæ).—This wood possesses no medicinal properties, and is used exclusively in dyeing, on account of the red coloring matter it contains.

(2) *White and* (3) *Yellow Sandalwood.*—The last two kinds are the produce of several trees of the genus *Santalum* (Santalaceæ). Certain authors have stated that they represent one the sap wood and the other the heart wood; but it has long been recognized that the depth of color of these woods depends solely upon the species that yields them, and the two sorts are in fact confounded under the same name.

This wood is very hard, of a more or less dark-yellow color, and has a very pronounced aromatic odor. The hard trunk wood is alone sent to Europe, the branches and white wood having no value; the roots are utilized in the country where they are grown, in the preparation of essential oil.

Sandalwood came originally from India. The *Santalum album* is still cultivated there in the mountains of Mysore and at Arcot in Madras. The cultivation is protected by the Government, which decides every year the number of trees to be cut down. The seeds of the tree are sown together with capsicum. The latter spring up very quickly, and the young capsicum plants protect the young sandal plants from the fierceness of the sun. They also serve the purpose of providing nourishment, as the young sandal plants, being parasitic, fix themselves upon the roots of the capsicum plants and draw from thence the necessary juices until they have attained a development, when they can nourish themselves directly by the aid of their own roots. When the trees have attained an age of twenty to thirty years they are cut down, and the trunks are freed from white wood and cut into small billets, which are sent to China or Europe. The roots are cut into chips and distilled on the spot by a very primitive process. The two ports of export from India of sandalwood and oil are Bombay and Mangalore.

The actual quantity of sandalwood oil exported from India tends to diminish. It is a strongly colored oil, and always adulterated, probably with castor oil.

Sandalwood is also met with in the Sandwich Islands, where it is yielded by *Santalum Freycinetianum,* and in the Fiji Islands, where the *Santalum Yasi* is found.

In Australia an essential oil is obtained by the distillation of *Fusanus spicatus* and *Fusanus acuminatus,* which is beginning to arrive in the European markets, but which is less odorous, like the wood from which it is obtained.

Lastly, there is received from Venezuela, but in small quantities, an "oil of sandalwood" known as West Indian, and which is indicated in the price currents as "W. I."

The best oil is, without doubt, that which is prepared in Europe, principally in France and England. The billets are reduced to shavings and distilled with water in large apparatus. The oil, being mixed in the wood with a resinous substance, separates with difficulty and distils over only after a time, when it is collected in a series of Florentine receivers, where it separates slowly from accompanying water. It is afterwards clarified by paper filtration. In this way is obtained an oleaginous liquid having a density of about 0.975 (the B. P. indicates 0.960 and the U. S. P. 0.945), lævogyre, neutral to litmus, soluble in alcohol, ether, and chloroform, and nearly insoluble in water. Exposed to the air, oil of sandalwood oxidizes and resinifies; on the other hand, it gives reactions similar to oil of turpentine and other hydrocarbon essential oils.

The consumption of sandalwood oil is an increasing one, and its high price presents naturally a temptation for fraud. It is not rare to find this essential oil in commerce mixed with fixed vegetable or mineral oils of far inferior commercial value. This addition is easily detected, for these fixed oils are usually lighter than essential oil of sandalwood, and diminish consequently the density when mixed. Further, if a drop of suspected oil be placed on a piece of unsized paper, any fixed oil present will not volatilize, but will leave a permanent stain.

A sophistication more difficult to recognize consists in the admixture of essential oil of cedar or copaiba, either made after distillation, or, as is sometimes practised, by distilling the cedar and sandal woods together. In this case it is not easy to detect the fraud, especially upon a brief examination. It can, however, be discovered with the aid of the polarimeter, as the addition of either cedar or copaiba oil to oil of sandalwood diminishes its rotatory power.—M. ADRIAN in *Journ. de Pharm. et de Chim.*, July 15th. After *Pharm. Journ.*

Pseudoconhydrine.

CONJOINTLY with G. Adam (*Berichte*, xxiv., 1671), Professor Ladenburg gives some further particulars concerning the new alkaloid, pseudoconhydrine, discovered by E. Merck in *Conium maculatum.* The base is readily soluble in water, alcohol, ether, and benzin, and the salts are also very soluble. The melting point of pseudoconhydrine is 100°–102° C., but it sublimes at a lower temperature in fine needles, and boils at 229°–231° C. The alkaloid is optically active, and, like conhydrine, must be a secondary base, since it yields a nitrosamine upon warming its hydrochloride with sodium nitrite. The formation of an iodine derivative by treatment with hydriodic acid, in which an iodine atom replaces an hydroxyl group, also determines that, like conhydrine, it belongs to the class of bodies termed alkines. In all probability conhydrine is piperidylethylalkine, $C_5H_9(CHOH.CH_2.CH_3)NH$, whilst pseudoconhydrine is the analogous derivative from isopropylpiperidine.—*Pharm. Journ.*

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BIBLIOGRAPHY.

PHARMACOGRAPHIA INDICA. A History of the Principal Drugs of Vegetable Origin met with in British India. By WILLIAM DYMOCK, Brigade Surgeon, retired, etc., C. J. H., WARDEN, Surgeon-Major Beng. Army, etc., and DAVID HOOPER, Quinologist, etc. Parts I.-IV. 8vo. Bombay, 1889-'91.

Parts I. to IV. of this important work, the successor of Dr. Dymock's well-known "Vegetable Materia Medica of Western India," comprise the vegetable drugs of the natural families from Ranunculaceæ to Solanaceæ, according to the usual succession, and it will probably require two more parts to bring the work to an end.

In treating the different subjects the authors have followed Prof. Dymock's well-tried plan, giving in most cases, first, references to illustrations of the plant or plants treated of; then, habitat and vernacular names; history, uses, etc.; description, microscopic structure, chemical composition; collection; commerce, etc., etc. Naturally, on so vast a field, it was necessary for the authors to make use very largely of the literature existing on every subject, and this has been done with great judgment, all essential features being treated, while immaterial ones are omitted. References are always quoted in the text. In the chapters on history a great mass of original research is represented; many Oriental works, heretofore unused for these purposes, or known to but few, have been made use of. In connection with poisonous drugs often employed for criminal poisons, valuable statistics are given from the Government records. It is but little known, outside of India, to what an extent poisons are used among the natives for human beings or for cattle. One of the most generally used poisons is datura (usually in form of seed, from *Datura Metel, D. Stramonium*, or other species). Of late years the number of fatal cases have become quite rare, but it is generally accepted that if an individual, in India, has been first drugged and then robbed, datura has been employed. A common method of using it is by means of a hollow pestle, with which the natives pound the spices always employed in Indian cookery. A so-called road robber, having designs upon a travelling merchant or other transient guest, will place datura seeds in the hollow of the pestle, and thus pound the seeds up with the food without exciting suspicion.

We hope that the authors will soon carry their task to a successful end. A work of this kind, to be really useful, requires a most perfect index, and we have no doubt that this will be supplied. We would also suggest that the principal Oriental works quoted in the text be separately enumerated and briefly described, as to author, scope, contents, available editions (if printed), and time of composition, if known.

PHARMACOGNOSIE DES PFLANZENREICHES. Von F. A. FLÜCKIGER. Dritte Auflage. Mit einem geschichtlichen Anhange. 8vo. Pp. xvi., 1,117. Berlin, 1891. [Pharmagnosy of the Vegetable Kingdom. By F. A. Flückiger. With an historical appendix.]

This new edition of Flückiger's standard work represents the progress in our knowledge of the principal drugs during the past eight years. Nearly every page bears testimony of the care with which the revision of the text has been accomplished. In view of the great number of subjects treated it is impossible to go into details here, but some points of note may be mentioned.

We have only noticed *one* article eliminated in this edition; this is Sanguis Draconis, which, indeed, should no longer be quoted among drugs. The principal *new* admissions are the following: Cascara Sagrada ("Cortex Purshianus"), Cinnamomi cortices varii, Cortex Copalchi, Cortex Quillajæ, Folia Coca, Semen Arecæ, Semen Strophanthi. Since the work treats of numerous drugs which are not (or no longer) official in the German Pharmacopœia, and since it was, in fact, not the intention of the author to confine himself within such narrow limits, we may regard the new edition almost as a revised "Pharmacographia," though we think that some particularly well known, and almost international, drugs like Rhizoma Podophylli, Oleum Ricini, etc., ought to be included. We trust that the author may see his way clear to do so in a future edition.

One of the most valuable features of the work are the historical notes given in connection with each drug. For these all the sources are carefully quoted, and only one well acquainted with the resources of large libraries of reference can realize what an immense amount of literature, ancient and modern, often drawn from the most remote or unexpected quarters, has been laid under contribution in this portion of the work.

A COURSE OF HOME STUDY FOR PHARMACISTS. First Lessons in the Study of Pharmacy. By OSCAR OLDBERG, P.D., Professor of Pharmacy and Director of the Pharmaceutical Laboratories in the Department of Pharmacy of Northwestern University, etc. With 150 illustrations. 8vo. Chicago [1891].

There are many thousand members of the profession in this country who never meet with the chance of receiving systematic instruction in the various branches of their profession, either in regular colleges or from individuals. And yet it is well known that there are thousands, particularly of the young and more ambitious members or beginners, who are anxious to acquire such knowledge, but who do not know in what way to begin. Many of them, who have perhaps only a Dispensatory or some Formulary for reference, begin to read and re-read these works, picking up crumbs here and there, but much of the matter is only poorly or partly understood or remembered by them because of their lack of preliminary training. There is, therefore, a real demand for methods of instruction specially designed for those who cannot leave their places of employment. Among the successful solutions of this problem is the work here noticed.

We have carefully examined the contents, and are convinced that any person, of fair education, who will spend the necessary time upon a study of the work, will accomplish the object in view. In many cases it might be advisable to present the various subjects in a different succession. This will, of course, depend on the individual. Beginners would probably be most benefited by first taking up the subject of Pharmacy, in which pharmaceutical operations and apparatus are explained. At the same time, or after cursorily passing over "Pharmacy," Materia Medica might be taken up. This need, at first, not be gone through systematically, but may be taken up as one or another subject comes to the attention of the student. Later on, however, the drugs should be studied in groups. When some progress has been made in both of these departments, the subjects of Physics and Chemistry may be taken hold of, and by judiciously distributing his leisure time over the several departments a good foundation may be laid by the student.

One advice we might give here which we know will be useful. It is this: Whenever possible, let at least *two* young men join together in carrying on such studies. The mutual discussion of the subjects will cause a much more ready assimilation than solitary study would effect.

The language of the text is clear and precise. In one place we found an oddity which we hope will be eliminated in the next edition. On page 308 the author teaches that the liquid in which a precipitate is to be produced is called "*precipitand*," and the liquid or other material causing the precipitate "*precipitant*." True, the former is the "liquor præcipitandus," and the latter the "liquor [or materia] præcipitans." But who could distinguish these two words readily in English conversation? Another thing: We do not believe that anything material is gained by printing chemical formulas in two colors. By choosing sufficiently contrasting type, the constituents of a formula may be just as plainly shown.

We understand that the first edition is nearly exhausted, within a few weeks. The book will evidently have a large circulation, and fully deserves it.

CORRESPONDENCE.

Determination of Sugar in Diabetic Urine by the Muscimetric Method.

Edtior American Druggist.

Dear Sir:—Prepare a 1-per-cent solution of grape sugar in healthy urine, pour it on a soup plate; on another plate pour an equal volume of the diabetic urine; evaporate both to a syrupy consistence, then expose both plates in a place where there are flies. After ten or fifteen minutes count the flies on each plate, divide the number on the diabetic urine by the number on the grape-sugar solution, which will give the percentage. Yours truly,

Koehler, *Physiologist.*

St. Louis, July 25th, 1891.

"Every Man his own Postmaster."

Editor American Druggist.

Dear Sir:—Enclosed you will find a copy of my "Pocket Post Office," that I designed after suggestions from *American Druggist*. I think it is a grand medium for advertising. I do all my printing, and believe fully in the "make it yourself" maxim, from soda water to chemicals and pharmaceutical galenicals. I find many scientific and mercantile matters in your columns that are of great value to me, and hope to continue to find them. I have a very fine microscopical display in my window that is attracting much attention, prepared by Geo. S. Hazard, M.D., a clerk of mine. And with one of Queen's microscopes, with ⅛ inch and ¼ inch objectives, we show customers all sorts of microscopical wonders, together with tubes of pathogenic cultures of bacteria. The display includes quite a complete outfit for microscopic work, slides, mounts, cultures, etc., etc. I believe such novel window displays are among the best of advertising mediums, to say nothing of the interesting features to one's patrons.

Pardon me for time I have taken, but I was so pleased with the "post-office" I thought I must write you about it. Yours, etc.,

Chas. A. Miller.

Roxbury, Mass., Aug. 2d, 1891.

P. S.—Forgot to add that we make a special point of looking for drug adulterations, both by chemical and microscopical methods.

Mouse Poison.

Sulphate of Strychnine	70 parts.
Sugar of Milk	70 "
Prussian Blue	2 "
Arsenious Acid	140 "
Wheat Flour	600 "

Rub the sulphate of strychnine and sugar of milk together, add the Prussian blue and arsenic, finally the flour, and mix thoroughly.—*Nat. Drugg.*

NEWS AND NOTES.

CANADA.

The election of councillors of the Ontario College of Pharmacy took place on the 2d inst. The following is the result:

Division I., Buchanan 21, Waters 18; II., Polson 23, Hobart 21; III., McKee 35, Ryley 18; IV., Daniels 25, Jaffrey 20; V., Mackenzie 34, Gibbard 26; VI., J. W. Slaven 46, W. B. Sanders 30; VII., Patrie 17, Perry 16; VIII., J. A. Clark 34, Jukes 13; IX., McGregor 20, Snyder 18; X., J. J. Hall elected by acclamation; XI., L. T. Lawrence elected by acclamation; XII., Jordan, 34, Martyn 14; XIII., D'Avignon 25, Everest 7.

From the above it will be seen that the electors of nine of the districts approve of the action of the last council by returning their representatives. It is to be hoped that now that the sentiments of the electors have been proved, the calumet of peace will be handed around amongst the chiefs.

The president of the college has been returned by the handsome majority of 21, or nearly two-thirds of the total vote. Now that he is secure in his seat, let him and his opponents lay aside or burn their very complete dictionaries of expletives, and give us in the trade journals an example or so of that much-advertised but rarely-exposed-to-view higher education of pharmaceutical students. The administration of the affairs of the college cannot take up twelve months in the year, so let us have a change from self-adulation and hostile demonstrations to the other party. It would be well to bear in mind the fable of the two lions squabbling while the wily fox trots off with the cause of the contention.

The semi-annual meeting of the council for granting certificates of competency and for other business, is convened for Tuesday, August 4th, 1891.

The druggists of Montreal have organized for mutual protection against several pernicious practices affecting them in no small degree. Cutting and the vending of patent medicines, etc., by drygoods and grocerymen at reduced prices, are among the subjects for discussion. It is well they have instituted this association, not only for their own protection, but also that of their Ontario brethren. The thin end of the wedge was beginning to make itself felt.

MICHIGAN.

Frazier's drug store on Myrtle street, Detroit, was recently destroyed by fire, the entire stock being ruined, while the building was damaged to the amount of $300. Mr. Frazier's loss is about $1,500.

Michigan seems to offer a fertile field for the propagation of medical and pharmaceutical manufacturing concerns. There has lately been added to the already large list the Michigan Pharmacy Company, of Marshall, and the Wolverine Chemical Company and Diamond Bitters Company, of Detroit.

An item is at present going the rounds of the pharmaceutical press, for the supposed edification of the gullible retailer, to the effect that a certain member of a manufacturing house is now "taking his first vacation in twenty-seven years, etc." This statement is calculated to produce a large-sized cackle of mirth among those druggists who remember when this same gentleman was travelling about the country at the head of a professional baseball team not quite twenty-seven years ago. Such heartrending devotion to the interests of the "dear retailer" cannot be too highly commended.

At the meeting of the State Examining Board at Star Island, the following were given certificates as first-class Pharmacists: Harry W. Andrews, Adrian; Frank W. Blair, Birmingham; W. M. Choate, Jackson; Jas. E. Doyle, Middleville; T. R. Ellis, Port Huron; B. E. Foley, Lakeview; Lizzie Golden, Fenton; W. S. Gregg, Wm. Hyslop, Max Magdelender, Geo. von Nostitz, Michael Van Vliet, Detroit; Henry S. Berger, East Saginaw; Adam Newell, Burnip's Corners; Claude White, Lakeview; Purvis S. Wilson, Dresden, Ont. Assistant Pharmacists: Daniel Bryant, George F. Heinberger, Richard A. Patrick, Joseph Pryzbylowski, Detroit; Albert J. Beaudette, Windsor; James A. Ardiel, Grand Rapids; Wade B. Camburn, Hanover; Frank Connell, Belding; Charles W. Culbertson, Ridgeway; Fred. W. Pearlove, Mayville; Mark F. Dreymar, Marlette; Myron H. Henry, Greenville; Harney H. Hillier, Hartford; Oscar A. Marfilens, East Saginaw; Marlin A. Millard, Gaines; Nicholas D. Morrish, Sault Ste. Marie; Rolfe S. Patrick, Cassopolis; Oscar Peterson, Muskegon; John Stewart, Marlette; Saxe C. Stimson, Chelsea; Alex. Stuart, Windsor; Walter van Arkle, Muskegon; Thomas B. Welch, Strathroy, Ont.; Rollin C. Winslow, West Branch.

The first annual commencement of the pharmaceutical department of the Michigan College of Medicine and Surgery was held at Clawson's Hall on the 27th instant, and passed off with great éclat The following were presented with diplomas: Walter S. Dupont, Berthold Bertram, Walter M. Boylan, Charles P. Fisher, Frank L. Hays, John F. Bennett, Michael van Vliet, Oscar Kannsen, Ernest C. Lee, Geo. von Nostitz, Charles A. Bryan, Wm. S. Gregg, Albert Lamb, and Kenneth Kincaid.

Rev. Dr. Wallace Radcliffe delivered the address, which, as is usual in such cases, was chiefly notable for the euphonious flow of its flowery eloquence. The burden of his song was that druggists should avoid the sale of soda water on Sunday, and, in fact, everything else on which there might be any profit, and keep their stores open for the blessed privilege of alleviating human (and clerical) suffering free of charge. This advice is quite proper from a clergyman's standpoint, but most druggists will probably continue to run the risk of a rather shadowy Hades for the sake of gathering in the unusual stream of very material filthy lucre which is diverted into their coffers from the sale of soda on Sunday.

The Walkerville laboratory of Parke, Davis & Co has been closed down indefinitely. This action has caused much comment among medical and pharmaceutical Windsorites.

The time is now upon us when the druggist will reap rich harvests from the influx of visitors to the G. A. R. Encampment. In many of the down-town pharmacies the supply of postage stamps has already given out, while the demand for stools, camp chairs, etc., for the accommodation of those who desire to wait for the street car or question the clerk, is simply enormous.

MISSOURI.

The druggists of St. Louis are probably as shrewd a class of business men as will be found in any other line of trade; however, they are subject to occasional losses through impositions practised by sharpers. In the years gone by the retail druggists have become acquainted with many of the tricks played upon members of the profession elsewhere, and more than one druggist has occasion to remember the lesson through bitter experience. The most recent scheme comes from the ranks of the morphine eaters, who are always endeavoring to beg or steal their narcotic, which, as a rule, they can ill-afford to purchase. The trick which has been played upon many of the St. Louis druggists is not a new one by any means, but it had been so long since any one had practised it in St. Louis that the pharmacists were taken by surprise. The scheme is simply to buy an eighth-ounce sulphate of morphine bottle, and carefully removing the tinfoil and cork, and then as carefully replacing them after emptying the vial. The morphine eater then goes to a store and calls for a bottle of morphine, which is placed in the pocket, when the customer turns around with the empty bottle in hand, exclaiming that it seems as if it were empty. The unsuspecting druggist examines the bottle and surmises that he has been imposed upon by the manufacturer. The whole affair was not understood until the wholesale druggists found many complaints coming in from the retail druggists, and, by following the matter up, determined the sources of the empty morphine vials. The sale of goods to morphomaniacs is never a satisfactory transaction, unless the goods are sold at a fair profit and for cash. The occurrence just related shows that trouble may be made even when the market price is exchanged for the goods. Druggists in other sections of the country should take warning and not be caught as their Missouri brethren have been.

The legal and moral aspects of selling morphine to the unfortunates who habitually use it is a subject which is occasionally agitated in various sections of the country, but seems to have little or no effect on the condition of affairs which has existed for many years. The laws in many of the States prohibit the sale of morphine without a prescription from a regular practising physician, while the majority of the remaining States and Territories have poison laws requiring the registration of all such sales. As a rule the above requirements are entirely ignored when it comes to the sale of opium or morphine to those who habitually use it. The moral question seldom troubles the pharmacist, the argument being that if he does not sell it some one else will. The use of morphine is so carefully and secretly practised that the general public does not realize the extent to which it exists, or know the amount of crime and misery which it causes. This prevents any general crusade against the sale of morphine as we have against intoxicating liquors by the prohibitionists and temperance workers. If the druggists present at some State convention would relate their experiences with customers who use morphine, it would make a striking revelation for the public, and no doubt surprise the members themselves, for each druggist seems to think that his customers are about the only ones in the community who use morphine.

Chas. C. May, 34th and Lucas avenue, as well as Louis Schurk, 32d and Olive streets, were party to an interesting little case for the police courts. Two little girls, one 8 and the other 12 years of age, called at the drug stores named and ordered goods which were said to be for a prominent physician of the city with whom they claimed to live. The goods were delivered to the children, but it was soon discovered that the little thieves were unknown to the doctor or his family. An investigation caused the arrest of the children, who seemed to have taken this course through a love for adventure rather than a necessity for stealing or natural depravity. The druggists of St. Louis will be more careful in the future how they deliver goods on verbal orders.

Druggists of Missouri were not the ones to take the initiative in the recent movement to suppress the cut-rate evil, but the amount of work which they are doing is making up for any loss of time at the beginning. The St. Louis Apothecaries' Association and the Kansas City Retail Druggists' Association have called a meeting to be held in St. Louis Thursday, August 27th. This meeting is intended as a conference of local retail druggists' associations in the territory extending from the Great Lakes to the Gulf, and the Alleghanies to the Rocky Mountains. The societies in the territory named are requested to send one delegate for each one hundred members, or fraction thereof, in their respective societies. President Thomas Layton and Secretary G. H. Chas. Klie, of the St. Louis Apothecaries' Association, have been in active correspondence with the officers of a large number of these associations, and it is expected that delegates from each one will take part in the deliberations of the convention to be held at the St. Louis College of Pharmacy, August 27th. The work to be accomplished by such a convention has not been very definitely outlined; it will be left to the wise judgment of the representative men expected to take part in the convention. All of this shows that the interest in the cut-rate problem is not abating, and the retail druggists in this section of the country are not discouraged because they have been unable to restore full prices as quietly and easily as the most sanguine prophesied. The result of this convention will be awaited with interest by every retail druggist in the country.

The ways of the law are queer and often very tortuous, which explains, partially at least, why decision has not been reached in the case of the Missouri State Board of Pharmacy against the St. Louis retail druggist who it is claimed permitted an unregistered and incompetent drug clerk to compound prescriptions while the proprietor was absent from the store. The case is set for trial August 6th, but will probably be postponed until later in the month. If a decision is rendered in favor of the Board of Pharmacy, there are many other drug stores throughout the

State that will immediately procure registered clerks to compound their prescriptions. If the result of the trial is adverse to the Board of Pharmacy, these druggists will permit their stores to be illegally managed as at present, and await the action of the Board of Pharmacy in prosecuting them or their neighbors. There is one drug store especially in St. Louis which is attracting considerable attention from the law-abiding pharmacists. It is claimed that this store is owned and managed by a doctor who knows nothing about the drug business and little about medicine. He has his store kept open night and day, and leaves it in charge of a negro porter during the night, who is liable to make a mistake whenever he sells anything else than soda water. The doctor will probably hear from the Board of Pharmacy as soon as they are through with the present case on their hands. Another source of argument for the registered pharmacists is found in some of the dispensaries connected with the medical colleges and private hospitals. It is claimed that some of these pharmacies are in charge of people totally ignorant of the drug business. In some cases the dispensing department is managed by the Sisters, who have little idea of the art of pharmacy. This is certainly an opportunity for the Missouri Board of Pharmacy to continue its work of enforcing the law.

Incompetent druggists of Missouri who are driven out of the State by the pharmacy law can no longer go to Arkansas and enter business without being molested. The Arkansas pharmacy law went into effect the 1st of August, and henceforth every person dispensing drugs in that State must register with the State Board of Pharmacy. This shuts off one of the many sources of outlet for those who find it inconvenient to comply with the Missouri pharmacy law. Indiana is now the only State which gives such persons a welcome home. As yet Indiana is without a State pharmacy law, and from past experience it looks as if it would be some time before the State Legislature passes a bill regulating the practice of pharmacy in Indiana.

Grand preparations are being made in St. Louis for the fall festivities, which occur in the latter part of September and former part of October. This will be carried on on a larger scale than ever before, and it is expected that large numbers of retail druggists from Missouri and the surrounding territory will come to the city and place their orders during that time. The Missouri druggists particularly are in the habit of visiting their wholesale house every fall and selecting goods for the holiday and winter trade. This is a practice which seems to be highly satisfactory to the retail druggists and is encouraged by the wholesalers. The jobbing houses call in many of their travelling men during this season and keep them busy waiting upon customers. Judging from the preparations being made by the wholesale dealers, they seem to be expecting an unusually large trade the coming fall.

While St. Louis for the past three or four years has been a notorious city for the cutting of prices on patent medicines, the druggists throughout the State of Missouri have, as a rule, always succeeded in maintaining better prices; even Kansas City druggists have never gone as far as the St. Louis druggists in giving away their profits, so that the druggists in smaller towns cannot be expected to appreciate the present cut-rate movement to the extent that it is enjoyed by the druggists of the Mound City. Although the above is true, it does not prevent a general sentiment among the druggists throughout the State in favor of the movement to prevent cut rates. This is probably due to a great extent to the existence of so large and well organized a State Pharmaceutical Association, which manages to have well-attended meetings and instructs its members in the cause of trade interests.

Missouri is not a prohibition State, but it has a system of local-option laws which govern, or seem to govern, many of the smaller towns of the State. Wherever local-option laws exist the druggists have a great deal of complaint to make. They are not distressed because they cannot sell liquor, but the trouble comes from the fact that the entire liquor trade is thrown into their hands and it is given them in a very undesirable manner. It is difficult for a druggist in a local-option town of Missouri to understand the law from one day to another, because it depends greatly upon the interpretation of the local courts. The druggist never knows whether he is dispensing intoxicating liquors in accordance with the legal requirements, or whether he will be arrested before another day and put to a great deal of inconvenience and expense as well as disgrace. This question probably disturbs the average retail druggist in the smaller towns of the State more than any other evil with which they have to contend. It would be a good topic for discussion at the next meeting of the State Pharmaceutical Association, and is a subject well worthy of the consideration of the Committee on Legislation of that august body. If Secretary Klie would announce that this question will be brought up for consideration at the Excelsior Springs meeting next June, there would be representatives from every section of the State, which would far exceed all previous meetings of the Association.

One of the best known travelling men visiting the drug trade of Illinois has been E. W. RIDGEWAY, of Meyer Brothers Drug Co. Mr. Ridgeway was in the employ of this firm for a great many years, but failing health caused him to resign several months ago, and he died at his home in Mt. Vernon, Ill., last month.

W. A. STEWART, the present proprietor of Primm's Pharmacy, 14th and Washington avenue, is contemplating extensive changes in his place of business. The store has a trade which will justify such expenditures.

As a rule the drug clerks work westward in their efforts to secure suitable positions, but FRANK BYNE, of Kansas City, stems the tide and comes to St. Louis for a situation. He has had a number of years of experience in compounding prescriptions.

CHAS. W. NAU, Ph.G., is the very obliging and competent prescription clerk for G. H. Chas. Klie, 5100 N. Broadway. Mr. Klie always manages to employ first-class assistants.

St. Genevieve has furnished a number of druggists for St. Louis. Among them is DR. J. C. FALK, JOS. GEILER and JOHN BOGY, PETER PETERSON, and another young man from that town who is learning the drug business with Otto Clause.

The Alumni Association of the St. Louis College of Pharmacy held an executive board meeting August 4th, and elected a number of new members. The Association will hold a series of lectures during the winter months.

The new prospectus of the St. Louis College of Pharmacy is out, and it is a very handsome publication. For a copy address the Dean of the Faculty, J. M. GOOD, 2348 Olive street, St. Louis.

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Katzenjammer.—Resorcin is said to act admirably in cases of nausea and depression following a carouse. It is given in the dose of from 5 to 10 grains in plenty of water flavored with syrup of orange peel, and may be repeated once or twice at intervals of half an hour. A single dose of 10 grains is, however, said to be usually sufficient.

For Tender Feet.—Tramps, either amateur or professional, who suffer from sore feet after an unusually long walk, will experience great relief from soaking the feet once or twice a week in a half-pailful of hot water to which a piece of nitrate of potassium the size of a small walnut has been added.

Benzin for Boils.—Dr. F. W. Langdon uses benzin as an abortive agent in furunculosis, employing it in the following manner (*Lancet-Clinic*): At the first appearance of the little hard, painful papule, saturate a pledget of absorbent cotton with the remedy, and press it firmly, but not forcibly, over the swelling for about half a minute. Repeat this every hour or two for the first day; after that, two or three times a day, as the swelling and pain subside.

The Largest Fig Orchard in the World will soon be planted in Pomona Valley, Cal. Over 700 acres will be planted, or 73,000 trees. The projectors believe they can produce figs equal to the best Smyrna varieties. The trees will be imported from Syria.

American Druggist
AN ILLUSTRATED TRADE JOURNAL
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[ORIGINAL ABSTRACT FROM SPECIAL CORRESPONDENT.]

ON THE PRODUCTION OF VERY LOW TEMPERATURES.

At a session of the Berlin Pharmaceutical Society held on June 4th, Mr. Raoul Pictet, of Geneva, read a paper on the production of temperatures below —100° C. We have translated the most interesting portions of it from the report of our correspondent.

It is not very long ago that a temperature of —20° C. was considered the limit of cold which could be reached [and maintained technically] in practice. At the present time we are able to attain temperatures below —200° C., and even to work with them for technological purposes. Not only has our knowledge of physics been thereby enlarged, but we are enabled to undertake entirely new chemical operations.

The principle of the method by which such low temperatures are obtained is, of course, the well-known physical law that heat is consumed when liquids evaporate. Water boils at +100° C., ether at 35° C., sulphurous acid at —10° C., and nitrous oxide at —100° C. If a liquid is made to boil by diminishing the pressure it is under, heat is converted into potential energy of the gas produced, and the surrounding body is cooled to a temperature directly proportional to the depression of the boiling point. The problem, therefore, appears very simple. In order to produce a low temperature it is only necessary to evaporate a liquid of correspondingly low boiling point. If we, for instance, take nitrous oxide gas, we would obtain a temperature of —100° C. But since it evaporates very rapidly, even a large volume of it would be soon consumed and the operation would have to be interrupted. In order that it may be continued for some time, it is necessary that the escaping gas be continually re-collected and again compressed to a liquid. But this would be very difficult, since it would require a greater pressure than ordinary machines are able to bear. The task appears like having to pump water from a very deep shaft. If it were attempted to do so by a single pump, the latter would have to work against a pressure which the valves and pipes would be unable to stand for any length of time. But if the depth of the shaft is divided into several sections, each provided with a separate pump, the problem becomes easy to solve. Although this example is not entirely analogous to the transmission of motion by heat, it is much more so in the case of cold. The object is here accomplished by dividing the range between the existing temperature of the air and the low temperature we wish to attain into three parts, each of which is provided with its own machine. The *first* one operates by the evaporation of the so-called Pictet's liquid, a mixture of liquefied sulphurous and carbonic acid. This liquid is conveyed, by means of a pump, into an evaporating chamber, in which the temperature may thereby be depressed to —83° C. At the same time the machine draws off the gases and reliquefies them in a condenser under a pressure of 2 atmospheres. The whole circuit is therefore closed and operates without material loss, there being 1 kilo of condensed vapor collected for every kilo of liquid conveyed to the cooling chamber. Inside of the latter there is a tubular space into which the substances which are to be cooled are introduced. Their heat or caloric is there converted into the potential energy of the resulting vapor of the refrigerating liquid, and this vapor, pumped into the condenser, is again reduced to liquid. Hence the water which keeps the condenser cool may be said literally to wash the heat withdrawn from the substance to be cooled out into the sewer. In exactly the same manner is operated the second step of the process, in which liquefied nitrous oxide is used as cooling liquid. The gas is kept stored in large gasometers, from which it is pumped by a second engine into a condenser which has been already cooled during the preceding operation to —85° C. At this temperature a comparatively low pressure suffices to liquefy the gas. When it enters, as liquid, into the evaporating or cooling cylinder from which its vapor is pumped back into the gasometers or gas-holders, it lowers the temperature to —135° C. If it is now desired to apply the third stage, in which liquefied atmospheric air is used, there will be required not only the cold already established by the second stage, but also a high pressure. When air has been compressed at 200 atmospheres (at 3,000 pounds per square inch), and it is then cooled to —135° C., the pressure sinks to 75 atmospheres (1,025 pounds per square inch). After this any desired additional quantity can be pumped into the receiver without the pressure being increased, which is a certain sign that the air has been converted into a liquid. By the vaporization of liquid air a temperature of —200° to —213° C. may be attained. The lowest limit actually attainable under any circumstances is not very far below this. It might be possible, perhaps, by means of liquefied hydrogen gas, to go still further, perhaps as far as —255° C., but between the lowest temperature attainable to man and the *absolute* zero point [which, on theoretical grounds, lies at —273° C.] there will always remain a certain interval due to the influence of radiation. For it has been found that even the most sluggish vibrations of the "ether," which correspond to the lowest temperatures, are propagated almost without any hindrance, even through the poorest conductors of heat. One would suppose that a packing with cotton to the depth of 1 meter (39⅜ inches) would prevent radiation from the cooling cylinders, but it is as good as no packing at all. A cylinder of 1.25 meters in height and 0.21 meter in diameter, cooled to —80° C., absorbs every hour 600 calories [1 calorie is equal to the amount of heat which 1 Kgm. of water must absorb to raise it from 0° to 1° C.] by radiation, no matter how carefully the cylinder may be wrapped. Hence the task of removing, in form of gases, the immense quantities of heat which would enter the cylinder at the low temperatures above mentioned, would be about equivalent to that of trying to dig a hole in the ocean with a perforated spade. Thousand horse-powers would not be able to pump away enough gas.

But even without attaining the utmost limits, there is opened to us, through the method just described, and the last stage of which is only operated for scientific purposes, a wide field of new observations and facts. It is now at least possible to reach and maintain, with the greatest ease, in any laboratory a temperature of —100° C., and to make experiments under it. All determinations heretofore made at higher temperatures, and all laws [involving temperature] which so far could only be tested at higher temperatures, must now be determined or tested anew.

During such investigations we constantly meet with new phenomena.

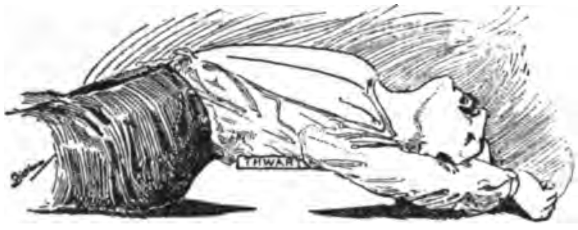
Recently it was suggested to me by Prof. O. Liebreich that chloroform, which it is so difficult to prepare in a perfectly pure state, could possibly be deprived of all impurities by freezing (that is, crystallization). On trial this was found to be unexpectedly easy. Since then I have subjected chloroform obtained from various factories, good and bad, to crystallization by cold, and, after removal of the mother liquid, have always obtained a notably purer product. The chromic acid test [which the author showed to the audience as applied to the best Edinburgh chloroform made by Duncan, Flockhardt & Co., and to chloroform purified by freezing] proves the absence of alcohol, including traces of aldehyde and other impurities. . . .

As an example of how entirely accidental discoveries have influenced the direction of my labors, I will report to you a remarkable phenomenon connected with *diffusion*. Being engaged with the investigation of Regnault's data regarding the density of gases, it occurred to me to make the measurements on a much larger scale, in order to eliminate errors as far as possible. I had india-rubber balloons made of about 1 meter in diameter, by means of which I obtained very exact results, completely agreeing with Regnault's values. But when I attempted to fill such a balloon with the vapors of a mixture of sulphurous and carbonic acid gas, it remained flat, and the odor of the gas was noticeable as if the balloon had been pierced with holes. After I had made sure that the latter was not the case, I tried several others with the same result. I found that sulphurous acid gas diffuses through caoutchouc [rubber] membranes with great energy. [The author showed this before the audience by experiment.]

The practical application of this is that sulphurous acid gas is the only efficient disinfectant for articles composed of or wrapped in rubber. During the cholera epidemic of 1882, public disinfection at the French and Swiss border was accomplished by means of Pictet's liquid. The articles were placed unopened in a room in which the liquid was allowed to evaporate. After a few hours they were completely disinfected.

RESUSCITATION FROM DROWNING.

The Brooklyn *Medical Journal* draws attention to a novel but very simple and easy method of resuscitating drowned persons, which was recently communicated by Dr. E. J. Harvey, and by which the life of a young man was saved at Red Bank, N. J. The young man, together with his father, was out boating, when the boat became upset, the father being drowned, while the son was rescued after having for some time ceased to give any apparent signs of life. Dr. Harvey happened to be out in a boat likewise, and succeeded in getting the body of the young man into his boat. The method of resuscitation adopted by him is one particularly useful while the body is still in the boat, inasmuch as it will do away with any danger from delay.



Dr. Harvey thus describes the method:

"When I reached the man I dragged him in at the bow—the bow or stern being the proper places to get weights into boats with the least danger of capsizing. When brought into the boat he had been submerged from three and a half to four minutes, and was entirely relaxed and unconscious; respiration had ceased and the face and lips were livid. He was at once placed upon his back, his shoulders on a thwart, his neck unsupported, and the back of his head resting upon the bottom of the boat, some five inches below, the upper surface of the thwart supporting the shoulders. The arms were extended beside the head, as in the Sylvester method. The clothing was removed from the neck. The position was something like that shown in the engraving.

"As soon as the head was thus depressed, a quantity of water poured from the mouth and nostrils; this flow of water was increased by lifting the shoulders from the thwart and still higher above the level of the head. When the flow stopped, the patient began to gasp; his shoulders were then replaced on the thwart. Breathing was gradually re-established. At first a good deal of foam and mucus obstructed and issued from the mouth and nostrils, and were wiped away; in a short time they ceased to form.

"It must have been half a minute after getting him aboard when the patient began gasping. It was my intention to use the Sylvester method of artificial respiration; but as the respiratory efforts continued and increased in frequency, I allowed the arms to remain extended and did not flex and compress them against the chest.

"As soon as respiration was firmly established, though stertorous, the unconscious patient was brought ashore and got into bed. He was then put in the care of his family physician. I am told that he did not recover consciousness for five hours after the accident, and that hypodermic injections of stimulants, etc., were used.

"He is about thirty years of age, of medium weight and size, and was not in very good health nor well nourished at the time of the accident."

Methods of Analysis of Fermented Liquors.[*]

[*As adopted by the Association of Official Agricultural Chemists of the United States for* 1890–1891.]

1. *Specific Gravity.*—This determination is made with a pycnometer, or a Westphal balance controlled by a pycnometer. Temperature, 25° C.

2. *Alcohol.*—One hundred cubic centimeters of wine at 25° C. distilled (preferably in glass) give + cubic centimeter alcohol.

3. *Extract.*—Fifty cubic centimeters of wine (at 25° C.), in case of sweet wines a less amount, are evaporated in a platinum dish on the water bath to a proper consistence, and then dried in a drying oven at 100° C. to constant loss of weight. Constant loss of weight is assumed when three weighings, with equal intervals between the first and second and second and third, give equal differences between the successive weighings. Weighings are to be made at intervals of fifteen minutes.

(Note on the Extract Determination.—So far as I am aware, no satisfactory method has been given for the determination of the extract of wine. I think that the method of the Bavarian chemists is, on the whole, the best. As the object is for purpose of comparison with some standard, we cannot do better, I think, than to follow the standard most generally adopted. I have in mind, when the new chemical laboratory of the University of California is fitted up, to make some experiments on the determination of this extract in a vacuum at a moderate temperature. I should modify somewhat the method of Gautier. However, until some better method has been established, I believe the method given will be most satisfactory.)

4. *Acidity* (total acid constituents of the wine expressed as tartaric acid).—If carbonic acid is present, expel by shaking. Titrate with dilute alkali solution. The neutral point is determined by adding a drop of solution to delicate litmus paper.

5. *Volatile Acids* (expressed as acetic acid).—Distil in a current of steam, and titrate the carefully condensed distillate with standard alkali (decinormal).

6. *Glycerin.*—(1) This is determined in dry wines as follows: The alcohol is driven off from 100 C.c. wine, lime or magnesia added, and the whole evaporated to dryness. The residue is boiled with 90-per-cent alcohol, filtered, and the filtrate is evaporated to dryness. This residue is dissolved in 10 to 20 C.c. alcohol, 15 to 30 C.c. ether added, and the mixture allowed to stand until it is clear. It is then decanted from the sticky precipitate into a glass-stoppered weighing bottle, evaporated to constant loss of weight, and weighed.

(2) The following method is employed for sweet wines: One hundred cubic centimeters wine are measured into a porcelain dish, and evaporated on the water bath to a syrupy consistence, mixed with 100 to 150 C.c. absolute

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[*] From Proceedings of the Seventh Annual Convention of the Association of Official Agricultural Analysts

alcohol, poured into a flask, ether added in the proportion of 1¼ volumes to each volume of alcohol used, the flask well shaken and allowed to stand until the liquor becomes clear. This is then poured off, and the residue again treated with a mixture of alcohol and ether. The liquids are mixed, the alcohol and ether driven off, the residue dissolved in water and treated as in (1).

(3) In all glycerin determinations it is necessary to take into consideration the loss of glycerin due to its volatility with water and alcohol vapor, and accordingly to add to the glycerin found 0.100 Gm. for each 100 C.c. of liquid evaporated.

(4) It is necessary to test the glycerin from sweet wines for sugar, and if any is present it must be estimated by Soxhlet's or Knapp's method, and its weight subtracted from that of the glycerin.

7. *Sugar.*—This is to be determined by Soxhlet's or Knapp's method. The presence of unfermented cane sugar is to be shown by inversion, etc. *Polarization.*—(1) The wine is decolorized with plumbic subacetate.

(2) A slight excess of sodic carbonate is added to the filtrate from (1); 2 C.c. of a solution of plumbic subacetate are added to 40 C.c. white wine, and 5 C.c. to 40 C.c. red wine, the solution is filtered, and 1 C.c. of a saturated solution of sodic carbonate added to 21.0 or 22.5 C.c. of the filtrate.

(3) The kind of apparatus used and the length of the tube are to be given, and results estimated in equivalents of Wild's polaristrobometer with 200-Mm. tubes.

(4) All samples rotating more than 0.5 degree to the right (in 200-Mm. tubes, after treating as above) and showing no change, or but little change, in their rotatory power after inversion, are to be considered as containing unfermented glucose (starch sugar) residue.

(5) Rotatory power of less than 0.3 degree to the right shows that impure glucose has not been added.

(6) Wines rotating between 0.3 degree and 0.5 degree to the right must be treated by the alcohol method.

(7) Wines rotating strongly to the left must be fermented, and their optical properties then examined.

8. *Tannin.*—Determine with Neubauer's permanganate method.

9. *Potassic Bitartrate.*—The determination of potassic bitartrate as such is to be omitted.

10. *Tartaric, Malic, and Succinic Acids.*—(1) According to Schmidt and Hiepe's method. (2) Determination of tartaric acid according to the modified Berthelot-Fleury method. (3) If the addition of 1 Gm. finely powdered tartaric acid to 100 Gm. wine produces no precipitate of potassic bitartrate, the modified Berthelot-Fleury method must be employed to determine free tartaric acid.

11. *Coloring Matter.*—(1) Only aniline dyes are to be looked for. (2) Special attention is to be paid to the spectroscopic behavior of rosaniline dyes as obtained by shaking wines with amylic alcohol before and after saturation with ammonia.

12. *Inorganic Matter* (ash).—Burn in ordinary manner in flat platinum dish at as low a heat as possible; repeated moistening, drying, and heating to redness are advisable to get rid of all organic substances.

13. *Citric Acid.*—Presence to be shown by a qualitative test, as baric citrate.

14. *Sulphuric Acid.*—To be determined in the wine after adding hydrochloric acid.

15. *Chlorine.*—To be determined in the nitric acid solution of the burnt residue by Volhard's method.

16. *Lime, Magnesia, and Phosphoric Acid.*—These are determined in the ash fused with sodic hydrate and potassic nitrate, the phosphoric acid by the molybdenum method.

17. *Potash.*—Either in the wine ash, as the platinum double salt, or in the wine itself by Kayser's method.

18. *Gums.*—Presence shown by precipitation by alcohol; 4 C.c. wine and 10 C.c. 96-per-cent alcohol are mixed. If gum arabic has been added a lumpy, thick, stringy precipitate is provided, whereas pure wine becomes at first opalescent and then flocculent.

19. *Sulphurous Acid.*—One hundred C.c. of wine are distilled in a current of carbonic acid after the addition of phosphoric acid. The distillate, carefully condensed, is oxidized with bromine, and the amount of H_2SO_4 determined.

ABNORMAL CONSTITUENTS OF WINES.

Mannite.—When present in any considerable quantity it can be detected by simply allowing the wine (a few drops will be sufficient) to evaporate spontaneously upon a glass slide or plate. The mannite will crystallize in a characteristic stellated form, which can be recognized at a glance. It should be allowed to stand twenty-four to forty-eight hours. When the quantity is small, extract the residue evaporated nearly or quite to dryness with boiling 80-per-cent alcohol. Evaporate this extract to dryness, and extract with 95-per-cent boiling alcohol. The mannite, if present in any quantity, will separate out in part upon cooling. If allowed to evaporate spontaneously the characteristic stellated crystals can be obtained.

Lactic Acid.—This will be found in the alcohol ether extract of evaporated residue, and can be recognized by the usual tests. It may be determined by titration with standard alkali. It may be necessary to take larger quantities of the wine for this investigation.

In diseased wines butyric acid may be tested for in the portion of volatile acid.

Volumetric Estimation of Acetates.*

BY CLAUDE C. HAMILTON, M.D., PH.G.

THE quantitative analysis of the salts of lead by addition of volumetric solution of oxalic acid till no further precipitation is produced after filtering a portion of the mixture and adding more oxalic acid to the filtrate, is a source of great annoyance to the beginner in volumetric analysis. The same is true of the estimation of acetates by ignition and titrating the resulting carbonate with volumetric acid. Each of these processes, while accurate, is very tedious, and the young pharmacist loses interest in the anticipation of the results of his analysis long before his work is finished.

While the analytical chemist will find these or still more tedious methods to serve him best, the pharmacist will find methyl violet as an indicator to answer his desires in these cases for speed and accuracy. Methyl violet has been used for the detection of mineral acids in vinegar by the production of a blue or green color; when only acetic acid is present its color remains unchanged.

Now, if we add a mineral acid, say sulphuric, to an acetate, free acetic acid is liberated, while the sulphate of the metal is formed. There can be no free sulphuric acid present till all the acetate has been decomposed; so if we had added methyl violet it would have remained violet till all the acetate had been acted upon, and then turned blue or green with the addition of one more drop of sulphuric acid. By measuring the quantity of sulphuric acid required to produce the blue color, we can calculate the amount of acetate present in the sample.

Let us take an example, making our notes in "form":

Analysis No......

Estimation of $Pb_2O(C_2H_3O_2)_2$ in Liquor Plumbi Subacetatis, U. S. P., containing 25 per cent.

Amount weighed: 10 Gm.

Indicator: Methyl violet.

$$\begin{array}{rcl} 2H_2SO_4 + Pb_2O(C_2H_3O_2)_2 & = & 2PbSO_4 + 2HC_2H_3O_2 + H_2O \\ 4 \,|\, \underline{196 + 548} & = & 4000 \text{ C.c. } \tfrac{N}{2} \text{ acid} \\ 49 + 187 & = & 1000 \text{ `` `` ``} \\ 0.187 & = & 1 \text{ `` `` ``} \end{array}$$

18 C.c. of $\frac{N}{2}$ acid required to produce blue color.

18 × 0.187 = 2.466 Gm. of $Pb_2O(C_2H_3O_2)_2$ in 10 Gm. weighed

hence 24.66 Gm. of $Pb_2O(C_2H_3O_2)_2$ in 100 Gm., or 24.66 per cent.

The acid must be added from the burette at the rate of about 85 drops per minute, and the solution of the acetate kept at a boiling temperature. Any amount of free acetic acid can be present, or a mineral salt not acted upon by acids (as sulphate, etc.); but the process will only estimate acetate. It is applicable to all official acetates except acetic ether, which is not decomposed by acids, and acetate of morphine, which is liable to contain free alkaloid, causing a considerable error as to the amount of alkaloid actually present.

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* Paper read at the annual meeting of the Missouri Pharmaceutical Association.

The turn of color from violet to blue is more distinct by gaslight than daylight, as violet has a reddish color by the former, which immediately disappears when the blue forms. In titration by daylight the turn can be seen readily by placing white paper behind the beaker containing the solution of acetate.

Ten C.c. of the $\frac{N}{2}$ sulphuric acid should exactly neutralize 10 C.c. of volumetric solution of soda U. S. P.

Methyl violet (penta-methyl-parafuchsin, $C_{19}H_{12}N_3$-$(CH_3)_5$) has lately been introduced as an antiseptic in treatment of diseases of the eye by Dr. F. B. Tiffany, of Kansas City, for whom I have examined several samples for arsenic, but none contained that poison.

I append a table which will aid the operator in making these estimations without the use of equations. Dissolve the weight named of the salt in water, add methyl violet solution (5 drops of a 1-per-cent solution in dilute alcohol), heat to boiling, and let the acid flow in from a burette till the violet color is changed to blue; then calculate the amount of acetate.

	Weigh.	Each C.c. of acid indicates of acetate.
Plumbi Acetas	9.46 Gm.	2 per cent.
Liquor Plumbi Subacetatis	13.7 "	1 " "
Potassii Acetas	4.9 "	2 " "
Sodii "	3.4 "	4 " "
Zinci "	5.92 "	2 " "
Liquor Ammonii Acetatis	38.5 "	2 " "
" Ferri "	23.29 "	1 " "
Tinctura " "	23.29 "	1 " "

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Avicenna, "The Prince of Physicians," died some nine centuries ago, aged fifty-eight years. It is now proposed by the Berlin physicians to erect a monument over his neglected grave. The proposition is most creditable to the historic sense of the profession, and we hope that the learned gentlemen of Berlin who are initiating the movement will be successful in it.

Avicenna, M.D., was born about 1000 A.D., "in that delightful Province of the Sun," Khorassan, and he lived an interesting and variegated life. The doctor was a good deal of a politician, but he did not have a steady "pull" with the authorities. He got himself appointed grand vizier, but was shortly deposed, imprisoned, then reinstated, and finally deposed again and banished the country. He was a gentleman evidently of great but erratic talents, and is reported to have looked too much on the wine when it was red in the cup. He wrote a very good treatise on practical medicine, called the "Canon," which was used as a text book by medical students for several hundred years, and which must have run through a good many editions.

Dr. Avicenna was a brilliant man beyond any doubt, and ought to have a monument. But so, perhaps, ought Rhazes, Averroës, Albucasis, Avenzoar, and especially Honain, who, for true moral worth, perhaps exceeded them all. If, therefore, we undertake to honor the memory of the Arabs, it might be wiser to have a conjoint tablet and put on all the names. As soon as our American brethren have finished their monument to Dr. Rush, we trust they will take up the Arabs.—*Med. Record.*

The Borax Fields of South America.—The appearance of an inland sea in California is causing great anxiety regarding the supply of borax and boracic acid. Mr. Robottom, a gentleman who is well informed upon the subject, says that, if the Californian supply should fail, there is sufficient crude borax in Chili, Peru, and Bolivia to supply the markets of the world. One deposit which Mr. Robottom visited on the borders of Chili and Bolivia he describes as being 26 miles in length and from 3 to 6 miles in width. The high Andés and many of the valleys of these districts are, according to Mr. Robottom, covered with borax.—*Dalziel.*

How to Keep Surgical Needles from Rusting.

SINCE many pharmacists have to keep a supply of surgical appliances, among which the various needles are not an inconsiderable item, it will interest them to know what is regarded by experienced persons as the best way to keep them from rusting.

As long as they are kept in the original papers, and not handled by the fingers, they will usually keep well, even without a preservative. But where needles are often called for, and where the physician or surgeon prefers to *see* the different needles before he selects what he wants, it is generally preferable to keep at least part of the stock loose in little drawers, compartments, or other convenient receptacles.

In our own experience—which has been rather extensive, so far as surgical needles are concerned—we have found that the surest way of keeping them from rusting, and yet always accessible, is to preserve them under a layer of colorless vaseline oil (albolene). We use japanned tin boxes, having suitable compartments for the various kinds of needles, each provided with a well-fitting lid. Each compartment contains one kind of needle, and all compartments, which communicate with each other through a few holes near the bottom of the dividing walls, are about half-filled with albolene, in place of which any other colorless or pale-colored vaseline or paraffin oil might be used. They are taken out with pincers and laid on blotting paper, when the excess of oil soon disappears. The oily coat remaining on them does no harm, even if it is not removed when using the needles.

Others use different methods. Some keep the needles between oiled paper or oiled chamois; others rub them with resin cerate or mercurial ointment, etc.

Recently alcohol has been recommended by Dr. Robert H. M. Dawbarn, who writes in the New York *Medical Journal* as follows: It would be an interesting point to determine how many of your readers are agreed regarding the best way of keeping their various surgical goods and chattels ready for instant use. In talking with other surgeons I find many opinions about it.

As to needles, for instance. I think the majority, after sterilizing them by heat, try to keep them dry. Dry sterilizing at the usual temperature is apt to injure their temper and cause subsequent bending during use; boiling or steam, to induce specks of rust. Rust, too, results from occasional subsequent exposure to air; and if cotton or cloth is used, it attracts moisture. Should a film of vaseline or oil be applied as a protective, this causes dust to cling and requires fresh cleansing before use. Glycerin I have tried and found wanting. In it, hygroscopic as it is, the needles do not remain entirely untarnished. They finally turn black.

For the past year I have been pleased with the results of a new plan—new to me, that is, though very probably not to others. This is simply to keep my needles in alcohol. For extreme safety against rust I use absolute alcohol; but the commercial article would probably be efficient. At least, some needles which I have kept in common alcohol for a month as an experiment are as bright as ever.

Upon buying the needles I immerse them in benzin to remove grease. Then, after running them through a towel, I plunge the point (a cutting-edge Hagedorn) into a bit of cork of the size of a pea—to avoid dulling from jolting—and finally, with their corks, they are put and kept in a wide-mouthed, glass-stoppered bottle filled with absolute alcohol.

After use I sew through a thick, wet, soapy towel repeatedly, cleanse the eye with a thread, immerse in benzin, and finally replace in the alcohol. This is certainly an efficient disinfectant, besides being an excellent protector against rust.

By the bye, I long ago gave up using (save in bowel work) any other than Hagedorn *self-threading* needles, which are a decided comfort and, when properly made, do not cut the thread.

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Mannite is reported to be much used in the tropics as a laxative. Mannite is the sugar contained in manna, and is readily prepared in a pure state.

Scheme for Water Analyses.

THE following scheme, recast by us, is that devised by Th. Stillman (*Chem. News*, 1890), and is much in use both here and in Europe.

Evaporate 2 liters of the water in a platinum capsule gradually on a water bath to dryness, place the capsule in a drying oven, heat during half an hour to 105° C., and weigh the residue (A).

Next heat the capsule to dull redness, cool and weigh again the residue (B).

The loss of weight between A and B represents the organic and volatile constituents.

Next warm the residue B with 15 C.c. of strong hydrochloric acid, add 25 C.c. of distilled water, heat to boiling, and filter, through an ash-free filter, into a 100-C.c. flask, wash the filter, containing residue C, well, and make up the filtrate (*c*) with water to 100 C.c.

The residue C, upon the filter, consists of insoluble matter, silica (SiO_2), aluminum silicate ($SiO_2Al_2O_3$), or calcium sulphate ($CaSO_4$). It is dried, ignited, and weighed, next fused with soda in a platinum crucible, taken up with water, acidified with hydrochloric acid, and evaporated to dryness. The residue is again treated with water and filtered, yielding residue D and filtrate *d*.

The residue D is silica (SiO_2). It is ignited and weighed as SiO_2.

The filtrate *d* is rendered alkaline with ammonia, heated to boiling, and filtered, yielding residue E and filtrate *e*.

Residue E consists of alumina (Al_2O_3) and ferric oxide (Fe_2O_3). It is dried, ignited, and weighed, the result being given as alumina *and* ferric oxide.

The filtrate *e* is rendered alkaline with ammonia; after three hours the precipitate, consisting of lime (CaO), is collected on a filter, dried, ignited, and weighed. It is calculated into calcium sulphate ($CaSO_4$).

The filtrate *c*, amounting to 100 C.c., is divided into two portions, one of 75 C.c. (portion c_1), and the other of 25 C.c. (portion c_2).

The larger portion (c_1) is rendered alkaline by ammonia, heated to boiling, and filtered. There is obtained residue F and filtrate *f*. All weights finally obtained from this portion are multiplied by $\frac{4}{3}$ to get amount corresponding to 100 C.c.

The residue F consists of alumina (Al_2O_3) and ferric hydrate (Fe_2O_3). It is dried, ignited, and weighed together.

Filtrate *f* is rendered alkaline with ammonia, allowed to stand three hours, and then filtered. We obtain residue G and filtrate *g*.

Residue G consists of lime (CaO). This is dried, ignited, and weighed as CaO.

Filtrate *g* is evaporated to dryness in a platinum capsule, ignited (to drive off salts of ammonia), then boiled with water, the liquid filtered, and the filter well washed. We obtain residue H and filtrate *h*.

Residue H consists of magnesia ($Mg(OH)_2$). This is dried, ignited, and weighed as magnesia (MgO).

Filtrate *h* is transferred to a platinum capsule, a few drops of sulphuric acid added, the whole evaporated to dryness and ignited to a constant weight. The residue consists of sodium, potassium, or magnesium sulphate. It is first weighed, then dissolved in water, the solution made to measure 50 C.c., and then divided into two equal portions (*a* and *b*) of 25 C.c. each.

Portion *a* is mixed with a few drops of hydrochloric acid, then rendered alkaline with ammonia, and mixed with sodium phosphate solution. After three hours the precipitate is collected on a filter, well washed, dried, and ignited. The residue is magnesium pyrophosphate ($Mg_2P_2O_7$). This is calculated into magnesium sulphate ($MgSO_4$). The amount found is multiplied by 2, and then deducted from the total amount of the sulphates found in filtrate *h*. Finally, the amount of $MgSO_4$ [corresponding to the 50 C.c. of filtrate *h*] is calculated into magnesia (MgO).

Portion *b* is rendered faintly acid with hydrochloric acid and mixed with platinic chloride solution. The whole is evaporated, after addition of some alcohol, on the water bath to dryness, the residue treated with alcohol and filtered, so that the potassio-platinic chloride (K_2PtCl_6) is collected on the filter, upon which it is washed, dried at 100° C., and weighed. The weight found is calculated into potassium sulphate (K_2SO_4). It is multiplied by 2, and then deducted from the weight of potassium *and* sodium sulphate previously found in filtrate *h* (after deduction of the magnesium salt). The remainder is sodium sulphate (Na_2SO_4). Lastly, both the potassium and the sodium sulphates are calculated into potassa (K_2O) and soda (Na_2O).

The smaller portion (c_2) of filtrate *c*, amounting to 25 C.c., is heated to boiling, mixed with barium chloride solution, allowed to stand three hours, then the barium sulphate separated by filtration, washed, dried, and weighed. The amount is calculated into anhydrous sulphuric acid (SO_3) and multiplied by 4.

Carbonic acid in the original water is found by combining (by calculation) the chlorine and sulphuric acid with the bases, and then ascertaining how much carbonic acid is required to convert the remainder of lime and magnesia into carbonates (see below).

Chlorine is determined in the following manner: 250 C.c. of the water are evaporated to about 50 C.c. in a porcelain capsule. A few drops of solution of yellow potassium chromate are added, and the chlorine determined by titration with decinormal silver solution (1 C.c. = 0 0017 Gm. $AgNO_3$).

Notes.—The chlorine in the water is most likely combined with sodium. If there is more present than can be in combination with sodium, it may be combined with potassium, magnesium, or calcium. Sulphuric acid is considered as being in combination with alkali metals, unless these are already fully engaged by the chloride. In this case the sulphuric acid is reckoned to be in combination with magnesium or calcium. After all these combinations are calculated, the residuary calcium and magnesium are considered as combined with carbonic acid. The following tables show the quantities of the several constituents found in a certain water, and the combinations into which they were finally calculated:

Found:

	Gm. in 1 Liter.
SiO_2	0.0038
SO_3	0.0110
Cl	0.0062
K_2O	0.0033
Na_2O	0.0185
MgO	0.0165
CaO	0.0466
$Al_2O_3 + Fe_2O_3$	0.0020
Organ. Matter	0.0246
CO_2	0.0580
	0.1855
O in excess, corresponding to Cl	0.0021
Total	0.1834

Calculated into:

Sodium Chloride, NaCl	0.0154
Sodium Sulphate, Na_2SO_4	0.0141
Potassium Sulphate, K_2SO_4	0.0061
Calcium Carbonate, $CaCO_3$	0.0833
Magnesium Carbonate, $MgCO_3$	0.0338
Alumina + Ferric Oxide, $Al_2O_3 + Fe_2O_3$	0.0020
Silica, SiO_2	0.0038
Organic Matter	0.0246
Total	0.1831

Menthol in Hay Fever.

IN a note published in the *British Medical Journal* (July 18th, page 124) Dr. Lennox Wainwright states that he has found menthol, mixed with carbonate of ammonia and used as smelling salts, the most useful remedy that he has tried out of the great number that have been recommended from time to time. The patients say that all irritability disappears, and in many cases they get no return of the symptoms.—*Pharm. Journ.*

Testing Lard.

C. **Engler** and G. **Rupp**, of Karlsruhe, have recently reported (*Zeitsch. f. angew. Chem.*, 1891, 13) the results of their experiments upon pure and adulterated lard imported from the United States. They find the most reliable criterion to be *Huebl's iodine number*. In addition to this, they place the most reliance upon Becchi's test—boiling the fat with an alcoholic solution of silver nitrate; next upon the color produced by acetate of lead and ammonia (Labiche's reaction); and, lastly, Maumené's test, viz., the rise of temperature produced with concentrated sulphuric acid.

Regarding Becchi's test, the authors do not seem to be aware that it has been shown to give negative results of the presence of cottonseed oil in lard, when the cottonseed oil had been subjected to heat previous to its admixture with lard.

In the course of the paper the authors communicate a new method, devised by one of their assistants, Mr. Welmans, which is capable of detecting the presence, in lard, of vegetable fixed oils, provided they have not been previously subjected to chemical agents.

Welmans' test is the following: On shaking a solution of *pure* lard in chloroform with a solution of sodium phosphomolybdate in nitric acid, the color is not altered. In presence of fixed *vegetable* oils, however, the molybdic solution is reduced and rendered green, the color increasing in proportion to the percentage of the foreign oil present. On neutralizing the liquid with ammonia, the color changes to blue. No alteration is produced by the ammonia in the colorless liquids resulting with pure lard.

The authors found *pure* lard to yield the following results:

1. Huebl's iodine number (see below): 57.3 to 59.
2. Silver nitrate, either in alcoholic or in ethereal solution: no color.
3. Labiche's acetate of lead test: white mass.
4. Maumené's test, rise of temperature: 31° to 32° C.

Huebl's iodine number is a figure corresponding with the quantity of iodine capable of combining with the fatty acids, either free, or in their natural combination with glyceryl contained in the several fixed oils.

The directions of Huebl for finding the percentage of iodine taken into combination (the iodine number) are as follows (after Prescott, "Organ. Analysis"), commencing with preparation of the needful reagents: 1. *Iodine solution.* Of iodine 25 Gm. are dissolved in 500 C.c. of alcohol (free from fusel oil); of mercuric chloride 30 Gm. are dissolved in 500 C.c. of the alcohol, and this solution filtered if necessary; when the two solutions are united, and, after 6 to 12 hours standing, titrated with the standardized thiosulphate solution, and the standard noted. [This iodine solution has been found to be liable to much variation, if used immediately after being made. It is absolutely necessary to allow it to stand, as above directed, before titrating it.—Ed. Am. Drugg.]

2. *Thiosulphate* (*Hyposulphite*) *Solution.*—A solution of about 24 Gm. of sodium thiosulphate in the liter is made, and its iodine value accurately determined with a weighed quantity of freshly sublimed iodine. About 0.2 Gm. of resublimed iodine is placed in a small glass tube closed at one end and provided with a similar tube enough larger to serve as a cover, both tubes being previously dried and weighed. The iodine is heated in the inner tube, on a sand bath, until it melts, then covered with the outer tube, cooled in a desiccator, and weighed. The cover is now removed, and both tubes are placed in a stoppered flask containing 1 Gm. of potassium iodide (neutral and free from iodine) dissolved in 10 C.c. of water. When the iodine has dissolved, the solution of thiosulphate of sodium is added from a burette until the iodine color is reduced to a faint yellow, a little starch solution is added, and the titration completed to the extinction of the blue color. The iodine value of the thiosulphate solution is now written.

3. *Chloroform.*—The purity of chloroform is assured for this assay by digesting 10 C.c. of it with 10 C.c. of the iodine solution at ordinary temperature for two or three hours, and titrating to the extinction of the iodine with the thiosulphate solution, the stated quantity of which should be consumed.

4. *Potassium Iodide Solution.*—One part of pure iodide of potassium in 10 parts of water. It should be neutral in reaction, and should not contain any free iodine.

For the assay 0.2 to 0.3 Gm. of a drying oil, or 0.3 to 0.4 Gm. of a non-drying oil, or 0.8 to 1.0 Gm. of a solid fat, is taken in a close-stoppered flask of about 200 C.c., and 10 C.c. of the chloroform are added for solution. Of the iodine solution 20 C.c. are added in exact measure, and, if the mixture does not become clear after shaking, a little more chloroform is added. The quantity of iodine should be sufficient to leave a dark-brown color after one and a half or two hours' standing, the time to be taken for the reaction. In titrating the remaining excess of the iodine, 10 to 15 C.c. of the potassium iodide solution and, after shaking, 150 C.c. of water are added, when the thiosulphate solution is added, with shaking, until the color of both the aqueous layer and the chloroform layer is reduced to a pale yellow, when starch solution is introduced and the extinction of the iodine completed. For close results the iodine and thiosulphate solutions should be standardized just before or after the assay. The number of parts of iodine taken by 100 parts of the fat is known as its iodine number. Using a sufficient excess of iodine in the reaction, quite constant results are promised.

Succinate of Iron.

As succinate of iron has recently been revived as a remedy in jaundice due to the obstruction of the biliary duct by calculi, and also as a remedy in anæmia, the following working formula for a permanent solution, devised by Prof. W. T. Wenzell, of San Francisco, in 1880, will furnish a suitable form of the remedy. It is republished after the *Amer. Journ. Pharm.* (June, 1891).

Dissolve 50 grains of succinic acid in 3 fluidounces of water, neutralize nearly with ammonia, and dilute to 6 fluidounces. Transfer the solution to an 8-ounce bottle, add ⅓ fluidounce of the officinal Liquor Ferri Persulphatis, and agitate well. Transfer the mixture to a filter, and wash the precipitated ferric succinate thoroughly with distilled water. Next take 89 grains of citric acid, put it into a beaker, and add with stirring a sufficient quantity of ammonia water until the acid is dissolved and the solution neutral. Finally, transfer the moist ferric succinate to a porcelain capsule, add the solution of ammonium citrate, and dissolve, assisted by a gentle heat. The solution, when diluted to measure 6 fluidounces, will contain in a fluidrachm 2 grains of the ferric succinate or 5 grains of the double salt.

Attention having been called to the dark color of most samples of ferrous succinate solutions, the suggestion has been made that perhaps the ferrous carbonate employed in the usual method of manufacture of this salt is not entirely free from ferric salt, hence the dark color. In the same number of the *American Journal of Pharmacy* Mr. F. W. Haussmann writes that in some experiments which he has made to settle this question, a solution was prepared with the employment of recently precipitated ferrous carbonate, care being taken to prevent the formation of ferric salt as much as possible. The color of both solutions was identical, and on examination of a recently prepared solution little or no ferric salt was found. Hence it may be inferred that the dark color of the sample was not due to the presence of a ferric salt.

Cradine, a Vegetable Ferment from the Fig Tree.

Mr. U. Mussi has obtained a vegetable ferment from the leaves and branches of the fig tree (*Ficus Carica*). By making incisions therein, a white juice is obtained which possesses a peculiar odor, and, when mixed with water, deposits a sediment. The latter is soluble in presence of dilute acids and alkaline salts. From such solutions the new ferment has been prepared. It has been named *cradine*. It is said to act upon albuminoids, in presence of hydrochloric acid, much more energetically than pepsin. Even in alkaline solution it retains its activity. After digestion, the liquids are easily shown to contain much peptone.—*Pharm. Zeitsch. f. Russl.*

Obeah Poisons and Poisoners.

We take the following from an interesting paper on this subject by Eug. Murray Aaron, Ph.D., in the *Scientific American* (August 1st):

There is probably no locality where Anglo-Saxon civilization is now waging so active a warfare in this direction as in the British West Indies.

There the colonial governments are brought face to face with the Obeahman, whose skill with native poisons is supplemented by a certain rude acquaintance with the Pharmacopœia, and whose sway over his debased followers is practically absolute.

In Jamaica, the largest of these colonies, the greater extent of the interior affords ampler refuge for these impostors, who naturally desire to secrete themselves far from the ken of the police inspection. To offset this immunity from detection the officers of the law are necessarily more constant in their vigilance, and good offices of an "island chemist" and his assistants are constantly before the public. The very presence of such an official, whose main duty it is to aid in the conviction of suspected poisoners, cannot fail of having a deterrent effect on those who have recourse to the poison cup and the envenomed poniard. Mr. John J. Bowrey, F.C.S., who has filled the position of chemist-in-chief for over twenty years, has made a special study of the ways of Obeah and the Obiman, and to him the science of toxicology is indebted for important discoveries.

Obeah, the worship and propitiation of the eternal snake as an emblem of evil, long ago degenerated into a series of obscene orgies among its West Indian followers. The original office of the priest of this superstition was the simple protection of his followers from evil. It afterward came to include the perpetration of secret crimes against the property and lives of their enemies. The poisoning of implements of warfare seems to have been the first step in this direction, as Dr. Tidy has pointed out. Following this came the poisoning of streams used by hostile tribes. From these collective forms of savagery it was an easy step to the use of poisons in individual cases. The earlier expedients probably are still in vogue in the tribal warfare of Africa, but in the West Indies the skill of the Obiman is only invoked to enable a follower to wreak his vengeance on the flocks, the family, or the person of a hated rival or secret foe.

The Obiman is an acknowledged adept in the use of poisons, and while his skill may awaken suspicion, it too frequently defies detection, even with the aid of accurate chemical analysis.

The Spanish and French West Indies afford a greater proportionate number of cases of these crimes among the negroes. In Hayti, especially, the practice undoubtedly reaches its highest development and is practised with the greatest impunity. But as these countries do not employ official toxicologists to aid in the identification of such cases, we must still look to the British West Indies, and especially to Jamaica, for the best opportunities to study Obeah poisons and poisoners. . . .

Another feature in the government of Jamaica which does much to foster Obeah pharmacy is the mismanagement, as it appears to be to the disinterested onlooker, of what is termed the Island Medical Department. With eight heads of departments, drawing fat salaries, and a force of forty-one district medical officers, with a good salary guaranteed in each case, the patronage of the department has become of great value. Without going into particulars which would not interest the reader, it suffices to say that the result is to bring into great demand the services of "bush doctors," as those uneducated charlatans are called who brew simples from the wild herbs at hand. This is not to be wondered at when we find that there is but one educated physician to every 12,300 inhabitants, by far the greatest proportion of whom are spread over stretches of wilderness, and what wonder that "bush physic" is all that these ignorant, neglected negroes ever receive? . . .

Nature in the tropics lends herself readily to the uses of the poisoner. On every hand abound vegetable products from which the deadliest poisons may be extracted by easy processes. Lobelia, nux vomica, belladonna, prussic and oxalic acids, urechitine, manchineel, and many other less known substances are all abundant. In the animal kingdom the potency of putrid blood, the venom of tarantulas, scorpions, centipedes, and more rarely serpents, is well understood.

Although no poisonous snakes are now found in Jamaica, their venom is sometimes procured from elsewhere.

Père Labat is of the opinion that it is serpent venom which renders the scratch of the finger nail so deadly. But other poisons are employed in this way.

A case of this kind came to my personal knowledge. The victim, on shaking hands with a supposed friend, afterward found to be a rival, was slightly scratched by a sharply pointed finger nail. Death ensued within a few hours, and it was proved that the poison employed was of vegetable origin.

Cases in which a scorpion has been found to have been boiled in coffee or other beverages are not infrequent. Yet scorpions are so commonly found secreting themselves in household utensils that death from this cause is seldom attributed to anything but accident. Among the many forms of animal putridity employed by poisoners, none is more highly prized than that taken from the intestines of the gecko lizard. This creature, stuffed, is a rare charm; its saliva forms an ingredient in many love potions, and its claws, worn on a string next to the skin, are reputed to ward off leprosy, syphilis, and other like ills.

Among the vegetable poisons, a dilute prussic acid is obtained from the kernel of the rose apple, oxalic acid from various species of *Oxalis;* and the manchineel poison, crudely distilled from the tree of that name, is one of the most deadly, both as a stomach and blood poison. Nux vomica and belladonna are well known to the Obeah pharmacists, and they are also familiar with antidotes to these and other rapid poisons.

Urechitine, a potent toxic agent extracted from the very common yellow Savannah weed, *Lobelia,* was recently discovered by Mr. Bowrey, and by him made known to science through the medium of the Royal Chemical Society of England. Yet there is reason to believe that this poison has long been employed by the Obimen.

For some years the students of this science have been convinced that the Obiman was in possession of some cumulative poison whereby the death of a victim could be so timed as to take place after any stated interval—a poison the administration of which practically defied detection. In urechitine such a poison has at last been found. Mr. Bowrey's experiments therewith have been most thorough. A cat given but $\frac{1}{1000}$ of a grain per day regularly for six weeks, at the end of that time suddenly died in the most violent manner.

The chances of detecting such infinitesimal dose either by taste or sight are *nil;* the opportunities for the administration of such a dose in coffee, cocoa, or soup are legion. The chances that the chemist has for bringing the users of such a subtle poison to justice are almost too slight to be worthy of consideration. Its very action is described as least likely to awaken suspicion.

A typical case, one that will be at once recognized as typical by all West-Indians, may be related in conclusion. A mistress discovered that her well-favored quadroon waitress was exerting an undue influence over the eldest heir to the paternal acres, and reproved her therefor. Reproof not sufficing, a case of *flagrante delictu* was punished by a whipping with a strap, unfortunately not applied to the youth but to the plump shoulders of the girl. The punishment was taken in grim silence, and, at its termination, some threat, indistinctly heard by others, was made, in which "Obiman" and "work de Obeah" were phrases. The next morning the mistress and her daughter, who took breakfast alone together, were seized with convulsions, and before medical aid could arrive were dead. Here was quite enough of the circumstantial to warrant the arrest of the girl, but further than that the case never went.

Ginseng Farm.—There is a ginseng farm at Summit Station, Onondaga Co., N. Y. It is owned and carried on by George Stanton.

The Oil of Rose Crop.

The following is taken from an editorial contained in the *Chemist and Druggist*:

This year the rose crop has been unusually late. In that particular it has shared the fate of most other products of field and garden throughout Europe, but the rose tree has suffered more severely than many other economic plants on account of its extreme delicacy, which is wounded not only by the rigors of a severe winter, but suffers severely from spring frosts, mists, and excessive heat during the flower harvest. In normal seasons distilling in Southern Bulgaria commences on May 15th and lasts until June 15th, but this year distilling did not commence until May 26th; and as June 15th is always the closing day, the distilling operations had to be hurried on in a manner which greatly decreased the yield of the otto, an average of 4,000 kilos of flowers being required this season to produce 1 kilo of oil, against 3,000 kilos in ordinary years.

Statistics emanating from one of the most reliable firms in the trade show a total crop for the current season of 450,000 meticals (1 metical = 4.794 Gm.), or about 79,000 ounces English. That figure refers to the production of Bulgarian otto only, but up to the present time that is the only variety which need be considered for commercial purposes. The French otto of rose, although much dearer than the Turkish, is produced in comparatively insignificant quantities, while the cultures established by a German house in the neighborhood of Leipzig, and of which so much was written a few seasons ago, have not yet created that stir in commercial circles which the first reports of their magnitude led many to expect. Then there has been a good deal of talk lately about the extensive plantations alleged to have been laid out in Asia Minor by Mohammedan "exiles" from Bulgaria. It may be that some otto is obtained thence, but, if so, it probably goes straightway to Constantinople and is lost there in the general stock.

To revert to the Bulgarian yield, this crop of 450,000 meticals is said to warrant an advance in price of from 20 to 25 per cent at least, and, what is more, such an increment upon last season's rates is reported to have been actually paid to the Bulgarian distillers by the dealers. The latter have not as yet fixed their opening price for the season, a proceeding in which one or two large Constantinople firms usually play the leading part, the other dealers adjusting their prices upon the cue thus given them. From what we have been able to gather from one or two of the leading distillers, who have just made their accustomed annual visit to the principal European buying markets, it would seem that consumers will have to resign themselves to the necessity of paying a not inconsiderable advance upon the prices of last season. Nor need such an advance be grudged to the Bulgarian rose farmer, though in all probability he is not the link in the chain that will profit the most by the rise.

His occupation can hardly have been a very prosperous one for many years. About two years ago it was calculated that the rose grower, after paying wages, received about £10 per acre as the gross yield of his operations.

The average size of a plantation (though they vary widely in extent) is hardly three acres—minus the cow—and it may therefore be surmised that the problem how to make both ends meet is one of grim reality to the Bulgarian rose grower.

He, like so many others, is a victim of that great misnomer "overproduction." The season of 1872—the worst on record in Bulgaria—witnessed a rise in otto to about 33*s.* per ounce, and since that time scores of new cultivators, tempted by that alluring figure, have gone into the rose-growing business. Unfortunately for some of them, there has not been another absolutely bad harvest since 1879, and the last three or four seasons have even been unusually prolific. Since 1887 the crops have averaged about 90,000 ounces English; and even with a deficit of 20 per cent in this season as compared with 1890, the yield may still be called an almost normal one, and there is slight room for any advance in price beyond that already announced as practically inevitable. Assuming the correctness of the figures recently published by us from data supplied by a prominent dealer, it appears as if the district of Kezanlik, the most important of all the growing areas, has not produced quite so large a proportion of otto this year as formerly, though it may perhaps be rash to conclude therefrom that there is a tendency for the industry to direct itself towards the smaller centres, where, presumably, land and labor are cheapest.

Salicylbromanilide.

This synthetic compound, to which the proprietary name of *antinervin* has been given, is a combination of bromacetanilide and salicylanilide, and is supposed to possess the properties of antifebrin, bromine, and salicylic acid, without their unpleasant effects, and may consequently be supposed to have antipyretic, antineuralgic, and antinervine properties. It is a white, crystalline powder, having a rather pleasant, slightly acid taste, feebly soluble in cold water, but dissolves freely in hot water, alcohol, and ether.

Dr. C. S. Bradfute, who writes in the Cincinnati *Medical News* for June, 1891, states that the dose is from 3 to 10 grains, and is best given in the form of compressed tablets or in simple powders. Dr. Bradfute suggests that, for the sake of brevity, this compound be termed "salbromalide."

The claim has been advanced that salicylbromanilide is of value in diabetes, but Dr. Bradfute was not able to confirm this statement. It seems, however, that this compound is effective as a reliever of pain and those functional disturbances of the circulatory system which occur at the onset of acute diseases, and, although its power of reducing the temperature is undoubted, it should be given carefully in states of hyperpyrexia on account of its action on the heart.—*Ther. Gaz.*

Dermatol.

Under the name of "dermatol" a basic gallate of bismuth is being put forward as a substitute for iodoform. It is described (*Pharm. Zeit.*, June 20th, p. 386) as an extremely fine, non-hygroscopic, odorless, saffron-yellow powder, permanent in air and light, and insoluble in the ordinary solvents. On account of its insolubility, its antibacterial action is limited to the partwhere it comes into direct contact with the pus microbes, resembling in this respect iodoform. In addition to the direct antiseptic action of dermatol, it is claimed that dermatol has a desiccating influence, so that the development of bacteria is inhibited by the drying-up of their pabulum. The astringent action of the preparation is also said to influence the process of healing, whilst on the other hand it causes no irritation and is not absorbed. The preparation is further said to be valuable, when administered internally, in affections of the stomach and intestines, and it is stated that, as it is non-poisonous, doses amounting to 2 Gm. daily are well supported. The question has been raised why the pharmacist should be perplexed with such an unmeaning name as "dermatol" for a salt of bismuth, but the choice of the designation has been probably more influenced by the prospective profit of a manufacturer than considerations of the convenience of pharmacists.—*Pharm. Journ.*

* * *

Distillation of Essential Oils in Morocco.—The Sultan of Morocco has given his permission for the establishment of essential-oil works in his dominions. The essential oils will be subject to the following export duties: Caraway oil, 100 reals per quintal; thyme oil, 40 reals per quintal; peppermint oil, 40 reals per quintal; wormwood oil, 100 reals per quintal; arbutus oil, 20 reals per quintal. Distillation may only take place in towns such as ports, to the exclusion of the country districts. Merchants must confine themselves to the distillation of the five products mentioned above, to the exclusion of all others [!] Every other essence found in their possession will be treated as contraband goods and confiscated. A real is about 2½*d.* and a quintal 220.4 pounds.—*Chem. and Drugg.*

Testing Metallic Iron for Arsenic.

The last German Pharmacopœia appended the following test for arsenic to *Ferrum pulveratum:*

"Upon 1 Gm. of powdered iron pour 15 C.c. each of water and hydrochloric acid: the gas given off and escaping through a narrow glass tube should not impart more than a brownish color, within five seconds, to a piece of paper impregnated with solution of lead acetate and held against it. On igniting the gas, and holding a plate of porcelain down upon it, no spots should make their appearance upon the latter. A portion of the acid solution, when covered with a layer of hydrogen sulphide solution, should not show a dark color at the point of contact. Another portion of the same solution, after being oxidized with nitric acid, and precipitating the iron by ammonia, should yield a filtrate which is not altered by hydrogen sulphide solution. On making a solution in nitric acid of that portion of the iron which has not been dissolved in hydrochloric acid, it should not be colored dark by hydrogen sulphide solution, nor colored blue by ammonia in excess."

Otto Sautermeister draws attention to a serious error in these tests. He was led to discover it by his inability to detect arsenic in iron, though this was *known* to contain it, or, rather, after it had been purposely added to the mixture of acid, water, and iron which gave off a current of hydrogen gas. Even as much as 0.1 Gm. of arsenious acid, added in one of the tests, failed to reveal its presence in the evolved gas.

On inquiring into the causes of this, the author found that, if *zinc* was added to the iron while being acted upon by hydrochloric acid, the escaping gas contained the usual arsenetted hydrogen. When the zinc was omitted, and iron alone was used, the arsenic was reduced to metal (as the author thinks) and was deposited with the undissolved portion of the iron. At all events, after washing the residue, this appeared as a jet-black, somewhat spongy powder, which is dissolved to a yellowish liquid when treated with hydrochloric acid in presence of potassium chlorate. Ferrous chloride alone is not capable of reducing arsenious acid to metal. On looking through the literature, the author found a passage in an old paper by Prof. Woehler, published in 1839, which showed that the reaction was known to the latter; but it seems to have fallen almost into oblivion.—After *Pharm. Zeit.*

The Influence of Cultivation upon Coca.

Since coca has been made an object of cultivation in India and Java, it has been noticed, not only that the percentage of alkaloids in the leaves has materially increased, care having been taken to choose the richest individuals for propagating purposes, but also that the nature and relative proportion of the different alkaloids have been considerably altered. The quantity of cocaine has by no means increased in proportion as the total quantity of alkaloids became greater. Indeed, it may be said to have decreased, and it is now found that even entirely new alkaloids are produced under the new conditions.

An interesting discovery in this direction has just been announced by C. Liebermann (*Berichte*, 1891, 2336), who received the material, obtained from a Javanese coca, from Dr. F. Giesel, the discoverer of the new alkaloid.

The particular kind of coca from which it was obtained contained about 2 per cent of total alkaloids, among which was, however, very little cocaine, while it contained about 5 per cent (of the total alkaloids) of cinnamyl-cocaine. The new alkaloid has turned out to be allied to, or identical with, one heretofore obtained from one of the varieties of tropine (known as pseta-tropine) artificially derived from atropine. While a relationship between the cocaine group and the atropine group had already before this been discovered by Liebermann and Einhorn, the present discovery of the new base throws an additional light upon this relationship, and will probably help to clear up what is still uncertain in regard to tropine.

The particular base discovered by Giesel and studied by Liebermann is benzoyl-pseta[ψ]-tropeïne [$C_8H_{14}NO(C_7H_5O)$]. It is a strong base, very soluble in volatile solvents, optically inactive, and melts at 49° C.

Solution of Lactate of Quinine for Hypodermic Use.

M. Pierre Vigier draws attention to a solution of lactate of quinine which he proposed some six years ago for hypodermic use, but which appears to have remained practically unknown to the medical profession.

Lactate of quinine contains 78.26 per cent of the alkaloid. A solution of it, injected hypodermically, causes neither pain nor an abscess.

A standard solution containing 1 in 5 by weight is best prepared in the following manner:

Dissolve 21.5 Gm. (332 grains) of sulphate of quinine (representing 16 Gm. [247 grains] of the anhydrous alkaloid) in 500 C.c. (about 1 pint) of water with the aid of 27.5 Gm. (425 grains) of diluted sulphuric acid (1 of acid and 9 of water). Add 29 Gm. (450 grains) of water of ammonia; leave in contact during twenty-four hours, stirring from time to time. Wash the hydrated quinine with distilled water upon a filter, then mix it with 100 Gm. (1,540 grains) of warm water, keep it at a gentle heat on a water bath, and gradually add lactic acid until the liquid has a faint acid reaction, to produce which about 4.25 Gm. (65¼ grains) of lactic acid (specific gravity 1.215) will be required. Lastly, allow to cool, filter, and add enough distilled water to the product to make it weigh 100 Gm. (1,543 grains).

On filtering there will usually remain a small quantity of undissolved matter, never exceeding 0.5 Gm. The author usually rejects this; but he adds that if an exact 20-per-cent solution of lactate of quinine is required, it is only necessary to increase the sulphate of quinine to 22 Gm., and the other substances in proportion.—After *Journ. de Pharm. et de Chim.*

[*Note by Ed. Am. Drugg.*—Of course an exact 20-per-cent solution would require more than this. It would be necessary to carefully collect the residuary matter on the filter, separate the alkaloid, wash and dry it so as to ascertain the exact amount of anhydrous quinine it contains, and then to take this into consideration when making the final solution, which would, therefore, be proportionately less than 100 Gm. But for ordinary purposes such an exactness would be hypercritical.]

Commercial Bismuth.

A. Classen some time ago reported that commercial bismuth contained more than 1 per cent each of copper, iron, and lead. Schneider recently examined bismuth from the Saxony mines, and contradicts Classen's statement. He found very much less than 1 per cent of impurities counted together. Two analyses yielded the following results:

	a.	*b.*
Bismuth	99.791	99.745
Silver	0.070	0.066
Lead	0.084	0.108
Copper	0.027	0.019
Iron	0.017	trace.
Arsenic	none.	0.011
Sulphur	trace.	0.042

—*Journ. prakt. Chem.*, 1891, 23.

Phenacetin in Influenza.

Dr. Henry, St. Mary Cray, Kent, recommends phenacetin during the first stage of influenza. Its action, he says, is prompt and striking, so that many patients declare they have derived more benefit from the "powders" than from anything else. It rapidly cures the headache which is such a distressing symptom at first, helps to reduce the temperature, and mitigates, but does not entirely remove, the aching of the limbs, a few doses of salicylate of sodium effecting its final removal. He gives the phenacetin in 5 grain powders, repeated every four hours till the headache and other pains cease. He has used phenacetin largely in a variety of conditions, and considers it unrivalled as an analgesic. It seldom fails, it is comparatively cheap, tasteless, and, as far as he can see from a tolerably extended experience of it, it is totally free from the unpleasant after-effects—depression of heart, etc.—sometimes caused by antipyrin and other drugs of its class. Insolubility is its sole drawback.—*British and Colonial Druggist.*

Pure Phosphoric Acid.

M. NICOLAS, in *Compt. Rend.*, iii., page 974, describes a method of preparation of pure phosphoric acid in which a known quantity of pure calcium phosphate is gradually added to a slight excess of pure dilute hydrofluoric acid contained in a leaden or platinum vessel, the mixture being well stirred after each addition. An energetic action takes place and considerable heat is evolved. When all the calcium phosphate has been added, the high temperature of the mixture must be maintained for some time in order to complete the reaction. After the removal by filtration of the calcium fluoride which is formed, the solution of phosphoric acid is evaporated. At the point when the solution commences to become viscid the excess of hydrofluoric acid used is volatilized. The evaporation is continued until a thick syrup, containing 60 to 70 per cent of phosphoric anhydride, is obtained. Meta- and pyrophosphoric acids may be prepared by further continuing the evaporation and heating. The various calcium salts of phosphoric acid described by Erlenmeyer may be readily prepared by adding hydrofluoric acid to a large excess of calcium phosphate, and, after mixing well, dissolving out with warm water the acid salts produced. Impure phosphates, such as bone ash, may be used for the preparation of phosphoric acid, provided that the resultant acid, after being evaporated to carbonize the organic matters present, is diluted with water, filtered, and again evaporated.

A Few Remarks on the National Formulary.*

BY FRANCIS HEMM, PH.G.

DURING the past two years, while engaged in the work of furthering the adoption of this generally recognized guide for unofficial preparations in our State, I have met with many expressions on the part of the druggists; I will say right here most of them were laudatory and seemed to prove that not only was the National Formulary in the possession of most Missouri pharmacists, but also that it was in full force with them as well as with the physicians in their neighborhoods. They spoke of the formulas contained therein as being good and filling most of their wants, occasionally suggesting a preparation or several which are frequently prescribed, for which they would like a good working formula, to yield a good and uniform product. As a general thing they agreed that the work proved a boon to their business, appearing none too soon and filling a long-sighed-for want; to rid them or at least offer some relief of the existing evil—the tying-up of a vast amount of capital—to be able to meet the demands of their patrons by keeping stocked with the endless and ever-increasing nostrums and proprietary combinations.

They are satisfied it has been a source of financial profit to them for the past three or four years and spared them many annoyances; and though there may be further room for improvement, they are very willing to abide the necessary time to accomplish this end.

Others, for some reason strange to me, have not displayed the right spirit in this matter; some have confronted me with the statement that the arrangement of the Formulary is too complicated, in many instances necessitating the making-up of three or four preparations before the one aimed at can be made.

Some claim that it is impracticable with them because they have not the required facilities, viz., the needed apparatus and ingredients to manufacture them, or because they haven't sufficient demand for these preparations to justify the outlay to put themselves in the position to supply them.

Still another class remark that they would do their share to introduce these preparations to their physicians, if I could designate to them one or several houses from which they could procure them, or, if not all the compound, at least the basic preparations.

With the view of getting these druggists in our State into line and enlisting their co-operation in the future, I have decided to present the following facts as a reply to their statements:

In answer to the first statement I desire to say that the formulas of the N. F. can only prove troublesome when the pharmacist waits with his work until he needs one or the other of the preparations in a hurry.

Every systematic man arranges himself to be in readiness to discharge his duties with the greatest ease and celerity.

If there is any one class of men who can ill afford to be devoid of system, it is the druggists.

In the preface of the book the attention is called to the fact that the compound formulas are so constructed that it becomes quite unnecessary to keep most of them ready in stock, but by keeping on hand at all times the basic preparations (which are not so numerous, nor need they be carried in such large quantities as to tie up much capital) any of the compounds can be made on short notice and in any desired quantity to meet the exact requirements; in this respect unlike the buying of a pint bottle original package of some proprietary article for the purpose of filling a prescription calling for 2 ounces, the other 14 ounces usually forming dead stock.

Now, for those who have a light demand for this class of preparations it must certainly be the very thing they want.

With the following line and quantity in stock they are equipped for the work.

I also attach the approximate cost to show how much capital is needed to make the start:

1	gall.	Elix. Adjuvans No. 25	$1	20
1	"	" Aromatic No. 31	1	15
½	"	" Cinchona No. 42		85
½	"	" " Detannated No. 44		90
½	"	" Yerba Santa Arom. No. 54		50
½	"	" Pepsin No. 81		95
½	"	" Taraxacum Compound No. 105	1	15
1	pt.	Spirit Aromatic No. 337		50
10	ozs.	Comp. Sp. Orange No. 338	1	00
10	"	Spirit Curaçao No. 340		90
1	qt.	Syr. Coffee No. 352		40
1	"	Arom. Syr. Yerba Santa No. 360		40
1	pt.	Detannated Tinct. Cinchona No. 398		75
2	lbs.	Purified Talcum No. 385 @ 15c		30
1	pt.	Solution Carmine No. 210		50
1	"	Cochineal Color No. 211		25
1	"	Tinct. Cudbear No. 407		20
1	"	Comp. Tinct. Cudbear No. 408		20
1	"	Tinct. Quillaja No. 410		15
½	"	Spirit Phosphorus No. 344		40
½	"	Comp. Spirit Cardamom No. 339		30
1	"	Tinct. Citrochloride Iron No. 297		45
1	"	Tinct. Vanilla U. S. P.	1	10
			$14	50

Besides these it requires only the ordinary fluid extracts, tinctures, syrups, oils, chemicals, and other crude material usually carried in a well-appointed drugstore.

I would therefore say, keep these basic preparations always ready and you will find it quite an easy matter to compound most of the elixirs, wines, syrups, etc., in a few moments; you will be delighted with the work.

In answer to the plea that the necessary apparatus is not at hand, I would say it requires very little and at the same time an inexpensive kind.

Funnels, percolators, graduates, flasks, mortars, spatulas, sieves, and a few more simple pieces which are generally at hand in every drugstore, constitute the necessary implements.

One can certainly have a large array of them, but it is not absolutely necessary in order to do first-class work.

Any one can afford, and profitably so, to make N. F. preparations and push them, if he has any demand at all for this class of preparations, because they can be prepared at a very low cost compared to the price of the same class of preparations which are proprietary, and especially because he is not compelled to carry but one of each kind when the N. F. is in use, while on the other hand he is often obliged to carry three or four different makes of one of the same kind of preparation.

To the third class I wish to say, the right thing to do, if you don't know how, is learn to manufacture your own preparations, and especially those of the N. F. It will make you a better and more experienced pharmacist.

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* Paper read before the Missouri State Pharmaceutical Association.

But if you have not this inclination and buy, you will, I still insist, buy the N. F. preparations from your manufacturing pharmacist and push them in preference to the proprietary goods, for this reason:

You establish and confine yourself to one line; get uniformity in the State and help all of us just that much to get the preparations known and prescribed, and you will also make more money.

Ethylene Bromide.

We give, in the following, some additional information regarding ethylene bromide, which has been recommended by Dr. J. Donath as a remedy in epilepsy, to take the place of bromide of potassium, the long-continued use of which produces untoward effects.

Ethylene bromide is in form of a light brownish liquid, having an odor recalling that of chloroform and a taste which is at first sweetish and afterward burning. It boils at 300° C., solidifies at 0° C., has the specific gravity 2.163, and contains 90.9 per cent of bromine. It is insoluble in water, but easily soluble in alcohol and oils, and is best administered in emulsion.

Dr. Donath recommends its administration in milk, his favorite formula being:

℞. Ethylene Bromide,	
Alcohol	āā ♏xxij.
Oil of Peppermint	♏ij.

Of this 5 to 15 drops may be administered two or three times daily, or it may be administered in gelatin capsules, in doses of 3 drops mixed with 6 drops of oil of sweet almonds, of which two to four may be taken two or three times daily, and, according to the author, it is likewise suited for subcutaneous administration in oily solutions. The dose may be increased progressively until 70 drops are reached, the dose for adults, two or three times daily, or 10 to 20 drops for children. It should be remembered that a minim contains a little more than two drops of the ethylene bromide.

Before proceeding to the therapeutic use of this substance, Dr. Donath tested it on himself, and found that in ordinary therapeutic doses it produced no evident effects whatever in a healthy individual, and only in very large doses did it cause some nausea. Most of the cases of epilepsy in which he tested its therapeutic power were cases of long standing, which had for years been under the influence of potassium bromide. Twenty-one such cases were treated, but only notes of ten are referred to in detail, as the others were under observation too short a time to attempt to form reliable conclusions.

This substance should not be confounded with the bromide of ethyl, the anæsthetic, which has the formula C_2H_5Br. Ethylene, or olefiant gas, has the formula C_2H_4, and originates when alcohol is heated with concentrated sulphuric acid. Ethylene unites with two atoms of bromine to form a chemical compound analogous to ethylene chloride ($C_2H_4Cl_2$), which, under the name of Dutch liquid, was for some time used as an anæsthetic.—*Pharm. Post* and *Ther. Gaz.*

New Russian Pharmacopœia.

The fourth edition of this pharmacopœia is now in press, and will in a short time be officially notified to be in force. According to the *Pharmaceutische Zeitschrift für Russland*, the essential distinction between the new pharmacopœia and its predecessor consists in the tests for the medicines and the apparatus to be used in performing the tests. Of the 1,026 articles in the third edition 318 have been discarded and 100 new articles introduced, so that 808 now appear. Amongst the new articles are acetanilide, adeps lanæ, ethyl bromide, agaricin, amylene hydrate, antipyrin, arbutrin, charta sinapisata, chrysarobin, extracta fluida (condurango, Rhamni frangulæ. R. purshianæ, and Secalis cornuti), guaiacol, iodol, menthol, naphthalin, naphthol, paraldehyde, phenacetin, pyridin, resorcin, salol, sulphonal, thalline sulphate, urethane, vaseline, as well as Paraffinum liquidum et solidum, and new salts of inorganic and organic bases which have come into prominence of recent years, and several vegetable drugs, such as ergot *sine oleo*. Aconitine and digitalin are amongst the omissions.—*Chem. and Drugg.*

A New Absorbent of Oxygen in Gas Analysis.

Prof. L. L. de Koninck has discovered a new agent for absorbing oxygen gas promptly and completely from gaseous mixtures, such as air.

Believing that the use of a *ferrous* salt would accomplish the object better than any other substance, it remained to prepare an *alkaline* solution of a ferrous salt. This was finally accomplished by means of an alkali tartrate. The new reagent is prepared in the following manner:

Three different solutions are made, each measuring 100 C.c.; the first (A) containing 40 Gm. of crystallized ferrous citrate; the second (B), 30 Gm. of Rochelle salt; and the third (C), 60 Gm. of commercial caustic potassa.

These solutions must be mixed in a special manner, viz., 1 volume of A is poured into 5 volumes of B, causing a copious, whitish precipitate of ferrous tartrate. Next 1 volume of C is added, which causes the precipitate to redissolve.

The resulting solution is light yellowish, and when exposed to the air turns green in consequence of the formation of a ferroso-ferric salt. A perfect ferric salt is also clear.

The proportions given have been reached after some trials, from which it appeared that too small a portion of tartrate produces a dark or even a turbid solution.

If used in a double Hempel's pipette for the analysis of air, by means of the Hempel-Winkler burette, graduated in fifths of a cubic centimeter, the results showed, as a means of four experiments, 21 per cent of oxygen.—After *Chem. News*, vol. 64, 45.

Pharmaceutical Notes.

A fine *elixir of phosphates of iron, quinine, and strychnine* can be made by the following formula:

℞ Quinine Sulphate	128	grains.
Iron Phosphate Scales	256	"
Strychnia	2	"
Alcohol	2	ounces.
Water	2	"
Glycerin	2	"
Elixir Orange	q. s. 16	"
Solution Soda	q. s.	

Dissolve the strychnine in the alcohol, and the quinine and glycerin, and dissolve the quinine by aid of heat, then add sufficient elixir orange to make 14 ounces. Dissolve the iron phosphate in 2 ounces water by aid of heat. Mix with the elixir and neutralize with sufficient liquor soda.

This makes a nice permanent elixir, and by neutralizing the finished elixir instead of the iron solution a much nicer appearing elixir is produced.

The *oleate of mercury* made by precipitating solution of nitrate of mercury with solution of oleate of potassium is a much superior article to the U. S. P. product. A sample made by the writer six months ago is yet in a perfect state of preservation. This is a 28-per-cent oleate, and can be diluted as wanted.

By following the process of the National Formulary for making *extract licorice purified*, and evaporating the solution to seven-eighths of the weight of licorice used, and adding one-eighth the weight of alcohol in which 10 grains salicylic acid for each pint of finished fluid have been dissolved, a very excellent *solution of licorice* is produced. It keeps well, is cheaply produced, and for making syrup licorice or elixir, or for mixing with cough mixtures, is vastly superior to the fluid extract.

For making *iodine, belladonna*, and also for *stramonium ointments*, I have found petrolatum to yield a much nicer preparation than benzoated lard. And it appears to be equally as good medicinally, while pharmaceutically there can be no comparison between the two products.

For making *ointment oxide of zinc* I have found nothing to work so well in my hands as grinding through a small paint mill. This makes an excellent preparation, and much superior to any I have made by any other process.

In the preparation of *green soap* the proportions given in the National Formulary yield by a modified process a very excellent soap. The potash, water, and oil are mixed in a suitable vessel and heated continuously, adding alcohol in small proportions until saponification is complete. Add water from time to time to make up for evaporation. The alcohol hastens saponification; the product resembles honey in appearance and is very fine.

In pharmacy there is nothing more useful than a good pharmaceutical still and condenser. The necessity of every pharmacy having a good supply of fresh distilled water is recognized by everybody, and it is a fact that cannot be denied that *aromatic waters* are best made by distillation. The use of a still is absolutely necessary if a druggist would make fluid extracts economically. There are dozens of pharmaceutical stills in the market for the druggist to choose from, and the makers of each claim some particular advantages for their stills. It seems that in their haste to bring out some new form of condenser they have forgotten the old Mitscherlich condenser. The works of neither Remington nor Parrish illustrate or speak of it; yet in the opinion of the writer it is one of the very best forms of condensers known. It has a very large condensing surface, does its work rapidly and well, can be easily taken apart and cleaned, and is so simple in construction that any ordinary tinsmith can make one. This condenser is illustrated in Proctor's "Lectures on Pharmacy," and Mohr and Redwood's work on the same subject. I prefer one about 24 or 26 inches long and about one-half inch space between the two condensing surfaces. In my experience I have found a condenser of this size to leave but little to be desired, as far as a condenser is concerned.

If some manufacturing house would put a small *porcelain straining frame* on the market suitable for the prescription department, it would be certain to command a large sale. Many druggists have them made of tin, but tin is objectionable owing to its being liable to be acted on by chemicals, while porcelain would be entirely unobjectionable.—F. Edel in *Pharm. Era.*

The Manufacture of Oil of Birch.

A profitable industry, and one of which but little is known to the world at large, is carried on among the hills of New England. It is the manufacture of oil of birch, and five years ago it was an industry that paid the limited number of men engaged in it a very handsome return for their labor; but the placing upon the market of an adulterated oil has cut down the price of the pure article, and now the manufacturer fails to realize the liberal reward for his labor that he did formerly.

Oil of birch has a market value as a flavor. It is used largely in the manufacture of confectionery, and is sold almost invariably under a label that calls for the essence or oil of wintergreen. [The original paper states here that pure essence of wintergreen does not exist. This is a mistake. It not only exists, but is also manufactured in various localities. Only, since oil of birch possesses the same wintergreen flavor and is more abundant, most of the former is used as a substitute for genuine oil of wintergreen.—Ed. Am. Drugg.]

The manufacture of pure oil of birch is now confined to the State of Connecticut, where there are eight mills now in operation. Ten years ago the industry was known only in Pennsylvania, and all the oil of birch marketed passed through the hands of one wholesale drug firm in Philadelphia. . . .

Ten years ago hardly anything was known of the manufacture of oil of birch outside of Pennsylvania, and the secret of clarifying the oil was known to only a very few. About that time Rev. Tom Dickerson, of Essex, Conn., saw an opportunity to turn the vast forests of birch that crown the hills of New England into profitable use, and he sent his son to Pennsylvania for the purpose of learning the process of manufacturing the oil. The son secured a position in a birch mill, where he worked eighteen months, and during that time he had got an idea of how the work was done, and he managed to learn what chemicals were used in clarifying the oil. With this knowledge young Dickerson returned to Connecticut and engaged with his father in the manufacture of the first oil of birch ever extracted east of the Keystone State.

The first birch mill was built at Joshuatown, a dilapidated hamlet on the Connecticut River, nearly opposite Essex, and there Tom Dickerson & Son began the work that in three years gave them both an independent fortune. The success of the shrewd minister stirred the blood in the veins of some of the observing Yankees, and within two years there were six birch mills in operation within a radius of ten miles of Joshuatown, and this number has increased to eight. Although the clarifying of the oil is not an open secret, it is known to a large number of men who are engaged in the business.

With a capital of twenty-five hundred dollars a man can set up his plant and begin the manufacture of oil of birch. The best and most profitable mills are equipped with six water-tight wooden tanks, about 6 feet square. In some cases these tanks are so built that a fire may be set under them for the purpose of boiling the water they contain. These tanks have copper bottoms. In many of the mills the work is done by steam, and in such cases there must be a furnace and boiler, and a coil of steam pipes is laid in the bottom of each tank. With tanks, pipe, boiler, a few glass jars, and a good supply of fresh, cold water, the manufacturer is ready for business.

The farmers are paid three dollars a ton for birch brush that must not be more than 2½ inches in diameter, and the only variety of birch used is the black, mountain, or sugar birch. From the yellow and white birch no oil can be obtained.

If the farmer does not live more than six miles from the mill, he can, by working early and late, manage to cut and haul to the mill 1 ton a day. This, to the average New England farmer, is very profitable work, and the building of birch mills in their midst has been of great benefit to a large number of them. Many of these men who have birch to sell are not so favorably located as others. There are many men who drive a slow-going ox-team to the mill with but half a ton of brush, and the distance that they travel going and coming is more than twenty miles. Their compensation for the day's labor of three yoke of oxen and themselves is $1.50, but these men are satisfied with that, and in most cases their farms are clear of mortgage and they are not indebted to the village storekeeper.

The brush is chopped into pieces of from 1½ inches to 5 inches long by a heavy machine built with heavy knives, on the principle of a hay cutter. One ton of brush can be run through a cutter in an hour, if kept steadily running.

These short pieces are thrown into the tanks, in which about a foot and a half of water has been placed; the fire is then built, or the steam turned on, and the water set a-boiling. While the water is being heated, the covers of the tanks are shut and "plastered" or sealed around the edges with rye flour paste. This is to prevent the steam from escaping.

The water in each tank is kept at a boiling point six hours, at the end of which time the birch is exhausted.

Entering each tank near the top is an iron pipe, through which the steam escapes and passes through a coil placed in a barrel that is kept full of running water. In this manner the steam is condensed and drops into a glass jar, placed under a pipe at the bottom of the coil, for its reception.

Oil of birch in a pure state is much heavier than water. Thirteen fluidounces weigh a pound, and instead of rising to the top of the condensed steam, it settles to the bottom of the jar, where, in its action when the jar is moved, it very much resembles quicksilver.

In its crude state the oil is of a copper hue. If boiled in tanks with copper bottom, or if cooked over a steam coil, it is of the darker hue of iron. The most popular and the cheapest method of "clarifying" the oil is as follows:

The oil in its crude state is poured upon a woollen blanket that is then laid upon the top of the brush in a tank. The covers are "plastered" down and the water set a-boiling. The steam passes through the blanket, which "absorbs the particles of copper and iron" [so the original paper states; we need not say that this is highly improbable.—Ed. Am. Drugg.], and the oil drops into the receptacle at the bottom of the worm, of a hue that is very light green or like the essence of lemon. "Clarifying" the oil by the use of chemicals is much more expensive and generally less satisfactory.

A tank 6 feet square will hold a ton of brush, and each ton yields 4 pounds of oil. The mills are run, during the season, night and day, and each tank is filled three times. The daily product of a six-tank mill is about 75 pounds of oil per day. Five years ago the oil brought $3.15 a pound readily, but now the price is $1.50 a pound, but even at this reduced figure the birch oil manufacturer is able to pay his running expenses and make a neat income besides.

The product of the eight mills in Connecticut is handled by one firm in Essex, Connecticut. The mills do not run during the summer, because of the trouble of preparing the brush for the cutter, it being necessary to remove the foliage. The season opens about the first of October and the mills run until the last of April.—After *Scient. Amer.*, June 13th.

Elderberry Juice as an Indicator.

THE expressed juice of the fruit of *Sambucus Canadensis*, or elder, has a garnet-red color when neutral or acid, but turns green when alkaline. This property led to some experiments by the author as to its value as an indicator in volumetric analysis. These experiments show the elderberry juice to be not only superior to litmus for any titrations, but equal in efficiency to rosolic acid as an indicator in the estimation of ammonia or phosphoric acid. When the indicator is first added to ammonia, the color is a "muddy" blue, becoming clearer and of a pea-green color as the acid is added from the burette. This green is brighter and more distinct as the final end to alkalinity approaches, and, when a drop of acid is added in excess, instantly becomes a garnet-red color. This turn of the indicator was exactly at the number of cubic centimeters required to turn rosolic acid yellow, while phenolphthalein gradually faded out at a few tenths cubic centimeters more.

In titrating the precipitate of $MgNH_4PO_4$ by Stolba's method, the red color appears at just twice the cubic centimeters of HCl required to turn rosolic acid yellow. If the precipitate is dissolved in HCl and the excess measured back by NaHO, the green appears at just twice the cubic centimeters required to turn rosolic acid red. At the point where rosolic acid just turns red, elderberry juice has a violet color. Then, when the formula is Na_2HPO_4, the elder juice is green, and is not restored to red till the formula is H_3PO_4. The final point is more distinct when the $MgNH_4PO_4$ is dissolved in excess of HCl and the acid measured back by the NaHO. The author is engaged on further experiments in regard to the action of this substance with phosphates, to determine its practical value.

In titrating carbonates, a bluish-violet appears at the point when phenolphthalein is just decolorized (without heating), and changes to red at the same point that methyl orange is turned red. The change of color is not very distinct, depending on keeping the solution at a constant temperature.

These experiments were made with elderberry wine carefully neutralized with NaHO. The fresh juice may be preserved by addition of one-fifth of its volume of alcohol. The author finds it quite efficient in all titrations, unless it be acetic acid, when the colors seem so pale as to be rather indistinct.—CLAUDE C. HAMILTON, M.D., in *Meyer Bros'. Druggist.*

Wither's Antizymotic Solution is reported by Mr. Otto A. Bierbach, in a paper read before the Oregon State Pharmaceutical Association, to contain the following ingredients:

Mercuric Chloride	0.207	parts.
Aluminum Chloride	0.084	"
Zinc Chloride	0.048	"
Potassium Chloride	0.087	"
Sodium Chloride	0.788	"
	1.214	"
Free Hydrochloric Acid, in 100 parts of the solution	0.060	"

—After *Pacific Drug Review.*

American Druggist

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EDITORIAL.

DEATH DURING CHLOROFORM NARCOSIS.

TWO deaths from chloroform which recently happened at the Manchester Infirmary have created much stir in the British professional press. As is well known, our English confrères, like those in Germany and some other countries on the Continent of Europe, generally prefer chloroform to ether as an anæsthetic, in spite of the fact that the former has produced more accidents than the latter. It is, however, considered more efficient and prompt, and less frequently accompanied by disagreeable after-effects. The question now agitates the profession whether these deaths were due to some impurity in the chloroform, and speculation is rife as to whether "methylated" chloroform (that is, chloroform not made from alcohol, but from "methylated spirit," on which the internal revenue tax is saved by the manufacturer) has been employed. This kind of chloroform has generally been regarded as being less pure than that made from pure ethylic alcohol. The methyl base, during chlorination, is believed to be partly converted into chlorinated compounds which cannot be entirely removed, and which render the product dangerous. It must be stated, however, that the nature of these compounds has not been made out, and that their toxicity is not proven. Moreover, there are many deaths on record caused by chloroform assuredly made from pure ethyl alcohol and carefully purified before being administered.

We cannot help believing that many of the recorded deaths from anæsthetics were not so much due to an impurity present, but to other causes, such as faulty or careless administration; the presence of particular lesions or functional disorders of the respiratory organs or of the circulation in the patients; or, finally, to the fact that chloroform as well as ether may act as a poison, under unfavorable conditions, even when there is not the slightest impurity revealed by the most searching tests.

THE trouble with the retail drug trade of to-day may be traced entirely to the fact that the trade in proprietary goods has been developed upon faulty lines. If the same course had been pursued with these as has been followed in the case of most other proprietary articles in other trades, no such trouble as is now experienced would have existed; there would have been nothing like the present number of patents, and instead of the retail pharmacist being, as now, at the mercy of the manufacturer, the situation would have been completely reversed. In his effort to advance the professional relations of pharmacy the retailing apothecary has ceased to be as good a trader, and has not quite kept up with the changes and developments in the business methods of the community. The result of attempting to carry on his business in unbusiness-like ways has quite naturally been disastrous, and there can be but one method for correcting the trouble, and that is to return to the business methods adopted by others and sanctioned by law and custom.

Let us consider how other proprietary goods are handled. John Doe is the owner and manufacturer of a patented hay rake. He does not expect every country store keeper to promote his business interests and the sale of his rake as a matter of good-will or without sufficient pecuniary consideration to make the business profitable. Does the country store keeper sign a contract not to sell the rake for less than his neighbor? Not if he knows it; but he holds a contract signed by John Doe, in virtue of which he has the *exclusive* sale of that rake in that locality, and agrees only to keep a stock on hand and not to charge *more* than a specified price for it. John Doe, on the other hand, accepts the obligation to protect the retailer in his *exclusive right* to the sale of that rake in *that territory*. Such contracts are recognized by law and custom, and are the ones which control the handling of pretty nearly all patents excepting proprietary medicines. The present faulty system has made the retailing apothecary the catspaw for the manufacturer's chestnuts, and has done more than anything else to bring the manufacture and sale of this class of nostrums to its present proportions. Any attempt to improve the trade in this particular, short of accepting and practising the business methods of other dealers, must prove utterly worthless. If you think there is a chance to make a profitable business out of the sale of somebody's "sarsaparilla" in your town, pay him something for the privilege of handling it, and take his written contract that he will furnish it to no other dealer within a specified territory, nor allow other dealers in adjoining territories to supply it. Then you have some sort of hold upon your business which people of ordinary intelligence will understand; and when you want to sell out your stock and good-will you have something tangible to dispose of, and the courts will help you defend your proprietorship. As it is now, you are doing business at your own risk for another man's benefit, and if you venture to protect yourself by the measures the "other man" has been proposing of late, you will discover that they are either contrary to law or protect only the other man.

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Jules Leon Augustin Creuse, a graduate and member of the College of Pharmacy of the City of New York, formerly connected with the editorial staff of the *Druggists' Circular*, and for some years a resident of his birthplace, Paris, died on August 13th, as we learn with sorrow from his relatives just before going to press.

NEWS AND NOTES.

ENGLAND.

THE annual meeting of the British Medical Association has just taken place at Bournemouth. The attractive features of this popular southern health resort accounted for the attendance of some seven hundred medical men. In connection with this, a word about the Association will explain its importance to the medical profession of this country, and indirectly to pharmacy. The Association was established some sixty years ago, and has steadily grown in numbers, wealth, and importance, until now nearly half the medical men upon the register belong to it. It has upwards of 13,800 members and an annual revenue of $159,075. The chief advantage offered by membership is the copy of the *British Medical Journal*, the official organ of the Association, the editor of which is Mr. Ernest Hart, F.R.C.S. Each year the Association holds its annual meeting in one of the large towns of the United Kingdom, but there are local branches in nearly every district, whilst at the London headquarters is a good library, etc. Like other scientific bodies, it makes large grants of money for investigations annually, and yet has succeeded in accumulating over $200,000.

A president is always chosen from the medical men of the town or district visited, and Dr. J. R. Thomson, of Bournemouth, occupied the chair this year. His inaugural address was partly eulogistic of the climate of his town and also of the advance made within recent years in sanitary science.

Of chief interest to druggists is the annual museum which accompanies the visit of the Association. In this museum are concentrated the exhibits of all the leading wholesale druggists who appeal specially to the medical profession. A short description of the manner in which we do this sort of thing may interest the readers of the AMERICAN DRUGGIST. Space has to be paid for at the rate of about fifty cents per foot lengthways, the exhibit being allowed to go up as high as the building can accommodate. Counters are usually covered with blue or red baize, and the pharmaceutical and chemical exhibits displayed in cut-glass bottles of every size and shape. Amongst those who exhibited were Allen & Hanbury; Corbyn, Stacey & Co.; Liquor Carnis Co.; Macfarlan & Co., of Edinburgh; Thos. Christy & Co.; Hewlett & Son; Burgoyne & Co.; Burroughs, Wellcome & Co.; Hoff, of Hamburg; Oppenheimer & Co.; W. R. Warner & Co.; Richardson & Co., of Leicester; Parke, Davis & Co.; Seabury & Johnson; Warrington Chloroform Co., etc. Space will not admit of even a passing notice of the specialties with which these firms are associated, but a few words about two or three of the exhibits will give some indication of the others.

Burroughs, Wellcome & Co., of Snow Hill, London, always come to the front on these occasions. Some thirty feet of counter space was covered with the specialties of this firm, whilst Mr. Burroughs himself was actively superintending the efforts of three or four travellers that he had with him in drawing the attention of medical men to their products. Of course, "tabloids," or compressed tablets, were important features, and special arrangements were made for the exhibition of their disintegrating properties. It may be mentioned here that some rivalry has taken place between this firm and another later arrival in the same field on the subject of "disintegrating" tablets. Soon after the announcement in the pages of the AMERICAN DRUGGIST that many tablets passed through the internal economy of patients unaltered, and that this could be remedied by the addition of a more soluble body, such as sulphate of soda, sugar, etc., to the pellet, Allen & Hanbury took up the idea and freely advertised their compressed goods as disintegrating "tabellæ." B., W. & Co. were not far behind in pointing out that several years ago, by carefully regulating the pressure, they had obtained the same results. Amongst the novelties was an inhaler designed by Sir Morell Mackenzie. It consists of spirit lamp, an oil or glycerin bath surrounding a small hot-air chamber in which is placed a thermometer and sponge with inhaling tube. It is evident that with little direction the patient can undertake a long course of treatment by this means, and the temperature of the hot air efficiently regulated. The firm have also introduced a new chloride of ammonium inhaler, consisting of an earthenware pipe, closely resembling in form a tobacco pipe, divided in the bowl. In one part is placed a piece of sponge saturated with ammonia, in the other pumice-stone is steeped with hydrochloric acid.

Hewlett & Son, Charlotte street, London, had a handsome exhibit of pharmaceutical specialties. The counter was partly covered with mahogany and glass-mirror steps, with mirror background. On these steps were displayed cylindrical bottles with cut-glass stoppers, each about two feet high and labelled with black letters on enamel-white background, with gold border, the whole being moulded into the glass. In these were such old friends as Easton's syrup, Parrish's syrup, liquid extract of cinchona, solution of coal tar, terebene, etc. Immediately in front were samples of concentrated mixtures from their own formulas or those of the London hospitals, which are prepared for the special convenience of doctors with club practice, for whom dispensing has to be made easy. A good display of pearl-coated pills in glass bottles was also shown, amongst which were Sir Andrew Clarke's anti-constipation pill, with the following composition: Aloin, ½ grain; Ferri Sulph., ½ grain; Ext. Nucis Vom., ½ grain; Pulv. Saponis, ½ grain.

Directly in front on the red baize cloth were specimens of new synthetic remedies in flat dishes with their glass covers. Aristol, piperazine, phenocoll, hypnal, orexin, etc., were amongst those shown. Other novelties were antiseptic jellies and pellets. The jelly was scented with otto and contained 1 part per 1,000 of corrosive sublimate put up in collapsible tubes. The pellets are also corrosive sublimate, delicately colored to prevent accident, and intended for the rapid preparation of antiseptic solutions of definite strength.

Seabury & Johnson's exhibit was a colossal proof of the hold that antiseptic dressings, bandages, and plasters have taken upon the profession. Over all, surrounded by small flags of international variety, was a large portrait of "George J." The Viburnum Compound was also strongly in evidence through the enterprise of the New York company. So were also Upjohn specialties.

Amongst the American visitors to the meeting were Dr. Avery and Dr. W. M. Polk, of New York.

A complaint was signed by all the exhibitors of drugs and chemicals against the permission of bootmakers, etc., to display their wares side by side with the druggists. A similar objection was lodged several years ago against the display of sanitary drain pipes and other interesting but slightly unsuitable objects in the same part of the museum, and the committee promptly arranged a sanitary appliances' exhibition by itself in another building.

London Market Report.

MINCING LANE, August 9th, 1891.

Business has been exceptionally dull both in the chemical and drug markets during the last month. Prices, however, are fairly maintained. Changes are talked about in the directorate of the Chemical Union, and have already depressed the shares somewhat. There are no immediate signs of opposition, and Union rates are held. Advices from Smyrna indicate lower prices and fair demand. Quinine remains unaltered.

The following are current prices:

Acid, citric......	per lb.,	$0.40	Aloes, Cape......	per lb.,	$0.06
Tartaric........	"	.28	Balsam of Peru,	"	1.66
Oxalic.	"	.07	Buchu leaves...	"	.11
Bleaching p'wd'r	per cwt.,	1.90	Colocynth......	"	.28
Copper Sulph.....	"	3.25	Ergot, Spanish..	"	.40
Cream of Tartar,	per lb.,	.20	Ipecacuanha....	"	1.90
Mercury.........	"	.48	Morphine Mur.,	per oz.,	.80
Calomel........	"	.76	Codeine.......	"	2.44
Corrosive Subl.,	"	.60	Opium......	per lb.,	2.0 to 2.4
Potash, Chlorate,	"	.11	Shellac, TN........	per lb.,	.20
Bichromate.....	"	.08	Button..........	"	.22

CANADA.

I SPENT a few days last week running around the country visiting some of my old pharmaceutical friends. The majority of them were complaining of very slack times. A few of them at watering places and summer resorts, or on the line of traffic, were keeping up to their average, but the greater number were doing little more than paying expenses. However, they look confidently forward to a good fall trade. The expected European demand for wheat and the abundant crops in Canada are making farmers jubilant, and, as everything springs from the soil, we expect to feel the favorable effects.

In my peregrinations I witnessed an amusing occurrence. One of our large city druggists (expressive, if ungrammatical) recently signed a new hand. This latter was a young man endowed with all the peculiar restless proclivities of youth. One day, while putting the head clerk through his shorter catechism—a process all we who have acted in the latter capacity are fully acquainted with—the embryo chemist came across a bottle of Dolichos pubes. (Dolly-kus poobs he called it), and was warned of the irritating properties thereof—a very rash proceeding on the part of the head clerk. There is a confectionery and fruit store next door and a newspaper office a few doors up, all using the same "back yard." The fruiter is in the habit of leaving crates of partly decayed fruit in the yard until a "load" accumulates. The newsboys take excellent care of this refuse fruit. One day, while about a dozen of them were picking over the fruit, James put a small portion of cowhage in each of his fingers, and, under the pretence of picking amongst the fruit, contrived to sprinkle the irritating powder over the hands and the back of the necks of the newsboys, and retreated to watch developments. The plot matured in due time, and before long the store back and front was guarded by a scratching, cursing, angry mob of newsboys. They, or some of their fraternity, stood on guard all day. James went without his dinner, had his tea sent down to him, and slept all right on a pile of old coats on the dispensary floor. And, as the saying goes: "It is an ill-wind," etc., it is a noticeable fact that it takes James just about half the time to go a message that it did before the occurrence.

Our town (Hamilton) is *en fête* this week. The Saengerfest is being held. The town is swarming with Germans, and the air thick with gutturals. There is a procession of beer wagons from the two lager breweries from early morning till late at night. Wine clerks and policemen are working full time, although for the crowd and excitement I never saw so sober and quiet a lot of people. Hawkers of souvenir badges, penny whistles, and "buzzers" are playing to full houses. By the way, this week witnesses the introduction of the phonograph as a street show. There are about a dozen in different parts of the city. It is amusing to watch ten or twelve of our most staid and sober citizens standing around a peculiar-looking wooden box from which run two rubber tubes to the ears of each of the audience. All at once they appear to be interested, and suddenly they fall into a paroxysm of laughter as some witty speech or "laughing song" is ground out of the instrument. They are doing a thriving business.

The first meeting of the newly elected council of the Ontario College of Pharmacy was held in Toronto on the afternoon of August 4th and three following days. There were present Messrs. Hall, Clark, Slaven, Petrie, Polson, Jordan, McKee, Lawrence, Mackenzie, and Buchanan.

Mr. J. J. Hall was elected president, Mr. J. W. Slaven vice-president, and Mr. T. T. Lewis registrar. A message was read from Mr. G. S. Hobart asking a recount of the ballots of the recent election, and enclosing twenty-five dollars for the expenses in connection therewith. Referred to committee.

The president, Mr. Hall, spoke at some length on the work which would engage the council during the next two years. The practice of pharmacy was passing through an important crisis; there was danger of the retail pharmacist "being ground between the upper stone of high-priced, lightly palatable, mystic formula, free-sample, loudly advertised nostrums and ready-made prescriptions of the manufacturing chemists, and the nether stone of the rapidly ascending and cut-rate wholesale and retail price of patent medicines of the modern carry-all stores." There was danger of the therapeutical effects of drugs being lost or obscured in an effort to please the senses, and of chemists and medical practitioners being relegated to the level of shopkeepers for the sale of manufacturers' wares.

The reports of the Executive and Finance committees showed the affairs of the college to be in a prosperous condition.

The day following the report of the Committee on Education was read by Mr. Mackenzie. The interest in this report centred in the application of Mr. J. C. Perry for registration on an American diploma similar in character to that presented by Mr. Petrie, who claimed registration on a diploma obtained in Philadelphia after he had failed in the junior examinations at the Ontario College of Pharmacy. Neither the Philadelphia College nor the State of Pennsylvania will recognize the diplomas of the Ontario College, and the State Board will not recognize any diplomas even of its own college. Therefore it was claimed that this one-sided arrangement was hardly the fair thing. However, after much discussion, not conducted in as amicable a spirit as it might have been, the majority decided to adopt the report of the committee in favor of accepting the American diplomas.

It was decided to continue negotiations with the Quebec council with regard to reciprocity in diplomas, and to engage a detective to assist the registrar in attending to those members who are in arrears.

The meeting altogether was much more peaceable than was anticipated. Beyond some heated discussion, perfectly justifiable when such important subjects are in hand, and a few windy and witty passages between Mr. Polson and the president, there was nothing that would call for interference on the part of the Police Department.

CHICAGO.

Dr. Marr has removed his store from 56 North State street to 238 on the same street.

Elkin & Matkin have opened a new store at the corner of Van Buren and State streets. It is one of the most elegant of the down-town pharmacies, and the proprietors evidently intend to make a success of it.

On one of the recent Sundays a somewhat unusual scene was enacted in the pharmacy of Rimmele & Hiss, located at 2453 Wentworth avenue. A gang of hoodlums numbering about a dozen entered the store with the intention of "doing up" one of the proprietors. With the assistance of an unloaded revolver and several chairs, the members of the firm and clerk held the rowdies at bay and finally repelled them. Fortunately the only damage done was the breaking of a few shelf bottles.

Theo. R. Behrens has been quite ill with typhoid fever, but is now able to be about.

Hand & Britton have purchased the Oakland Pharmacy, located at Cottage Grove avenue and Oakwoods Boulevard, of Miller & Miller.

John Ritter has disposed of his pharmacy on Colorado avenue.

Bachmann & Miller succeed J. F. Bachmann at Halsted and Taylor streets.

Geo. F. Wisshack has opened another pharmacy at La Salle and Washington streets.

Otto Wocher has opened a new pharmacy at 55th street and Jefferson avenue.

J. G. Schaar, the pharmacist located so long at 649 Blue Island avenue, is now cashier of the Industrial Bank of Chicago, recently established at Blue Island avenue and 22d street.

The annual report of the Alumni Association of the Chicago College of Pharmacy is well under way and will soon be issued. It is in the hands of a publication committee consisting of E. K. McPherson, R. C. Frerksen, and A. E. Hiss.

Francis M. Fox, of 3199 Archer avenue, is another pharmacist who has been honored by a political appointment. He is the health commissioner of his district.

About fifteen of Chicago's pharmacists went to Milwaukee on the 12th inst. to attend the meeting of the Wisconsin Pharmaceutical Association.

A correspondent of the **American Druggist** recently paid a visit to the laboratory of the Searle & Hereth Manufacturing Co., and was shown through every portion of the establishment by the genial manager, Professor Frank S. Hereth, who is also director of the pharmaceutical laboratory of the Chicago College of Pharmacy. Everything was in neat and orderly condition, and a large force of employees was seen at work at the various operations incident to a manufacturing laboratory.

Charles L. Feldkamp has disposed of his store, located at Division and North Clark streets.

Dr. Edward Otto is the defendant in a divorce suit brought by his wife on the grounds of cruelty and adultery. Mrs. Otto was the widow of Dr. Matthei when she married the defendant in 1887, and claims that she was obliged to purchase groceries, clothing, etc., out of the money she received from the insurance on her first husband's life. Dr. Otto is the proprietor of pharmacies located at 115 Clybourn avenue, 875 Milwaukee avenue, and 260 North Market street.

KANSAS CITY.

A **department** house of Kansas City, one of the largest and most influential west of the Mississippi River, has determined to put in a drug department. Unless their intended action can be frustrated, the retail drug business of our city will be seriously injured. The Kansas City Pharmaceutical Association desires to nip this bud in its incipiency, if possible. A committee appointed at the last meeting have written letters to the wholesale druggists of the United States, asking them, in the interest of the retail druggists of Kansas City, and also in the interest of the retail druggists of the whole country, to refuse absolutely to furnish this house any goods in the drug line. The retail druggists of Kansas City have for several years been, and are still, standing solidly together in the matter of prices and other affairs of business and common interest.

Schoan Bros'. drug store at Fifth and Wyandotte has passed into its former owner's hands again. Louie Schoan has bought it from Woodbury Bros., who purchased it at sheriff's sale several weeks ago.

H. M. Hutton has removed his store to 23d and Prospect avenue. He is now in a locality much in need of a drugstore, and is sure to do a thriving business.

C. G. Nickolls has removed his store to 15th and Flora from 14th and Lydia.

R. J. Holmes has opened a new store at Ninth and Prospect, with new building and new fixtures—all his own.

Castle Bros. have removed their drug stock from Sixth and May to 12th and Charlotte. Wingate Jackson is clerking for them.

Frank Warren Swope, Ph.G. (class '90–'91), and Miss Hannah Babcock were married Wednesday morning, July 15th, at the residence of the bride's parents, No. 1712 Jarboe street. Rev. Reese, of the Dundee M. E. Church, officiated. Only immediate friends of the family were present. They left at once for a trip through the southern portion of the State. Mr. and Mrs. Swope are now at home at 1626 Summit street.

Mr. Dennison, of Wamego, Kan., has purchased the drugstore of Mrs. D. S. Jacobs at 14th and Penn. James Howard will have charge under the new arrangement, which is sufficient guarantee that the store will have a big trade.

Mr. Marshall, who has been the chief clerk for Doyle at 15th and Campbell, has returned to Pennsylvania, his native State, where he will enter the drug business for himself.

J. T. Ragland (class '90–'91) has been seriously ill for several weeks and we are glad to learn of his recovery. He has resigned his position with Beck & Swearingen and returned to his home in Marshall, Mo., to regain his health. We learn that he then contemplates seeking his fortune in old Mexico.

Beck & Swearingen have consolidated their stores into one and located at Sixth and Walnut streets, just opposite their old quarters. They have always enjoyed a paying trade at both their old stands, Sixth and Oak and Sixth and Walnut streets, and with such bright prospects before them are sure to be successful in their new store.

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JAVA AND THE JAVANESE.

From the steamer which brings us within view of Batavia we see only a low and marshy shore—nothing of the beauties which are later presented. The steam launch which takes us on shore traverses a long canal guarded by two jetties which extend far into the sea. Following the formality of the customs inspection, one drives to the hotel, which in the present instance is in the old town. Here the long streets, composed of Chinese and Malay houses on the banks of muddy canals, and Dutch agencies and counting houses, afford but little that is interesting. The public buildings are poor and dilapidated. Following the course of a *kali*, or canal, bordered on the right with hovels and shops succeeded by residences and storehouses, on the opposite side of the canal is an avenue of trees, and, as a foretaste of the wonders to follow, the profiles of palms and high branches of *varingins* appear beyond.

A House in Batavia.

Here and there appear Chinese dwellings with their monstrous porches and walls, and eaves richly fantastic. These residences are models of comfort; they are preceded by a large court decorated with vases of flowers and shrubs. Right and left, beyond a row of the grotesque plants dear to the children of the Celestial Empire, are seen aquaria and great dovecotes. Three masses of buildings follow, the first devoted to receptions, the second to the women and the family, and the third to the housework.

The further we advance the more abundant becomes the vegetation, and the landscape broadens. The dwellings bordering the route are surrounded by gardens. There are little palaces, charming cottages, and we arrive at the hotel.

The hostess assigns to me two great rooms with a veranda, and gives me a Malay as a servant, who proceeds to unpack the trunks, shake and brush the clothing, show me the bath, to which he accompanies me, and does so well, notwithstanding that neither of us can understand the other's language we get on marvellously well. At table he stood behind my chair, brought the dishes, mixed my *kari*, and, the meal over-returned with me to my rooms. As regards the composition of *kari*, it is a frightful mixture of all imaginable things. Rice forms the basis, but there are added eggs cooked on the plate and omelette, cooked and dried fish, chicken, mutton, cucumbers, beefsteak, etc., the whole moistened with a yellowish peppersauce, and reinforced by four or five kinds of *achars emporte-bouche* which give to this over-praised dish a multiple nauseousness.

Every one rises early to profit by the cool morning hours. The long hotel veranda is populated with people in light costume languidly stretched on rattan lounging chairs: men in *mauresques* and *cabaïos*, women with loose hair, dressed in rich *sarrongs*, and with bare feet in gold-embroidered sandals.

This is the hour for promenade, and the avenues are lively with calèches and carts drawn by Timor ponies. Thousands of Malays of both sexes bathe at this hour in the *kalis*, like Hindoos in the Ganges. A most punctilious regard for decency prevails, and I have seen women, entirely clothed, who did not drop their wet *sarrongs* until they were covered by a new garment.

Batavia is without doubt the best suited as a residence for the white race of any tropical city. It is not a city, correctly speaking, but an immense and beautiful park strewn with residences and palaces. There are no streets, but broad avenues bordered with great trees, embellished with tropical vegetation. These beautiful dwellings with columniated verandas, in white relief under the heavy shadows of palms and *varingins*—a species of tall fig—resemble Greek temples in sacred groves.

The museum of Batavia possesses an ethnographic collection of the Sunda Islands which is most complete. There may be seen Javanese huts, Malayan campongs, and the houses of Sumatra, idols, temples, arms, clothes, canoes, copper utensils, wooden pianos (xylophones), sonorous bamboos, gongs of all sizes, all shapes of pottery, and effigies or photographs of the natives. One may pursue in this immense hall a most instructive study of the manners and customs of the Malays. One room is devoted to statuettes, little idols of copper, silver and gold jewelry, rare and precious antiquities. Another is filled with a collection of ancient Javanese gods of the Brahmin Olympus. There are mortuary and boundary stones covered with inscriptions relating to the divisions of land—the most ancient monuments of this kind in Java, but all antedating the twelfth century.

The population of Batavia is very mixed. Besides the Malays and Javanese, who are natives of the island, are the Hindoos, Chinese, and Arabs; but the most restless is the inevitable Chinaman. Active, persistent, and economical, inured to labor and most eager of gain, no time or temperature repulses him. Alone, laboring under his burden or following the carriers, according to the importance of his station, a little drum of snakeskin or a little bell announces his passage.

The Malay is quite different. In Java the race is divided into three branches: the Soudanese on the west and in the mountains; the Javanese in the centre and east; the Malays upon the coast and in the towns. The latter come from Madoura, Amboine, and the Sunda Islands. All three are generally small and well made, with muscular power slightly developed; sometimes carrying heavy burdens as a result of special training.

They speak dialects known only among themselves, and have distinctive dissimilarities of cranial development. The Malayan head is large and flat; the forehead square; the hair plaited in European fashion. The Javanese have a long head, the vertex being higher; the forehead oval, and the hair plaits arranged in a half-circle. In both the eyes are black, slightly oblique, with yellowish or blood-shot sclerotics. They have broad noses, and lips projecting so much that, among the women especially, a rule applied to them will not touch the end of the nose. Both morally and physically the Javanese are much modified by an admixture of Hindoo blood.

The Javanese are sedentary; husbandmen; attached to the soil, serfs, and since twenty centuries have passed from one yoke under another, adopting the religion of Brahma, Buddha, or Mahomet, always submissive and conquered. Like all weak and oppressed races, the Javanese are profoundly religious. Religion is the compensation offered to the sufferer. Poor and without succor, the Javanese imposes upon himself pilgrimages to Mecca, which the Malay does but seldom. The knowledge of the dangers of the journey and of the death of those who have gone before does not prevent him. He has no care for tomorrow; never becomes rich, whatever be the produce of his toil. He lives always in the same hut, with the same food and clothing—a being sad, melancholic, and resigned.

The Malay belongs to a more fiery race. He is warrior, sailor, pirate, or merchant, and never easily accepts conquest. He remains free in certain of the Sunda Islands, and fights against the Dutch supremacy. In the islands of Madoura, Amboine, and Macassar he is submissive, and Holland recruits from among them its best colored soldiers. In Batavia he is willingly a servant for the sake of doing nothing, and fills several lower functions in the city administration, such as the care of the streets. As a servant he is gentle and serviceable, but delightfully lazy and susceptible to excesses. He requires good management, for he will not bear offence nor pardon an injustice. The white who wounds him exposes himself to a certain vengeance. Frequent cases are mentioned where Malays, armed with a pointed bamboo, have attacked and killed their master. At other times, when he doubts his courage, he becomes intoxicated with opium, brandy, etc., and with elevated head runs through streets and avenues, striking right and left, and venting upon several the injury of one. This is called *running amuck*. The streets are therefore provided with a body-guard having a collection of fantastic arms—lances, clubs, halberds, and long-toothed forks to pin the maniac against a tree or wall. They also have a piece of hollow timber on which to strike the hours and sound alarms.

The Malays live in the suburbs on the banks of the *kalis*, where a group of their cabins in the shade of the bamboos forms what is known as a *campong*. The women are laundresses or venders, and in the early morning hours may be seen under the trees on the avenues with their baskets of fruit and other wares, including rice and *kari* prepared in banana leaves, and tea.

A strange concert which strikes one's ears comes from the fighting crickets, which the Malays collect and keep in sections of bamboo. These insects fight with singular ferocity, and furnish a pretext for much betting.

If you wish betel leaves, you will see here baskets filled with the areca nuts, and the quid all ready for lovers of it; and there is no lack, for Malays and Javanese without exception follow this abominable custom. Inflamed mouths, blackened and eroded teeth, excoriated gums, are the result. No beauty can resist it, and the women, who are always homely, are not improved.

The Malays are very graceful, with their little Chinese physiognomy, their elegant forms covered with the many-colored *sarrong*, their well-shaped shoulders and arms appearing above the drapery which covers the breasts. The children are always charming in their semi-nudity, with heads shaven excepting a little tuft of hair like a plume.

The white race has not established a colony in Java, but an agency, as in India, and no more than in British India does the European take up his residence, cultivate the soil, or propagate his race. The climate does not admit of it. He comes here to secure employment, supervise a business, make a fortune—if it may be—and return to Europe. The white race does not prosper in that exhausting climate, where all labor is fatigue and the least movement causes debilitating perspiration. It is asserted that the first generation gives five girls out of every seven children, and that the family becomes extinct in the second. Men, however, are more resistant, and the climate affects them less rapidly. I have seen some old white inhabitants emaciated like opium smokers. Women are the greatest sufferers, their pale complexions and languid eyes giving evidence of the effects of the climate. The children are pale and fair like their mothers. Women and children go out of doors only between 7 and 10 o'clock, and always in a carriage, shutting themselves indoors later until after 5 in the afternoon. European women are rare, and this explains the frequent union of the whites with Malays or half-breeds (*nonnas*). A legal marriage is the exception, owing to prejudice, and the other attachments are attended with the inconvenience of being practically indissoluble. The spouse cannot absent himself without the consent of his companion. If she suspect his intention to abandon her, a voyage to Europe is forbidden. An excursion to Batavia is difficult—it is the road to Europe. If he ignores the interdiction he cannot escape the vengeance of his abandoned mistress nor defend himself from poison under many forms, slow and unknown, leaving no trace. If the man goes, the wife shows neither despair nor anger; her suffering, like her resentment, is silent. Once on the road, he becomes ill, loses flesh, digestion is disturbed, the emaciation increases, and he becomes hectic and cadaverous. His physician does not understand his strange condition and his directions are vain. His condition grows worse; for three or six months, it may be, he leads a painful existence, without a symptom which serves to enlighten the man of science. Still later tumors appear in his sides, abdomen, and chest, and the invalid is attacked with in-tolerable pain. What is this poison? Bamboo! The bamboo is a reed which seems most inoffensive, but it really possesses, around the seeds which grow upon each point of its stem, a multitude of imperceptible, powder-like, sharp arrows, which the woman has put into the food of her husband before his departure. These darts have invaded his entire organism, penetrated his lungs, stomach, and intestines, and abscesses are the final result of the presence of these foreign bodies.

A Malay Family.

An excursion which imposes itself upon every stranger visiting Batavia is that to Buitenzorg, chiefly on account of the existence there of one of the most famous botanical gardens of the world. Buitenzorg is reached by rail in two hours. The name means in Dutch what *sans souci* does in French—"without care." Buitenzorg is at the foot of the volcano *Grand Salak*, flanked by two rivers, and in the midst of a beautiful landscape. It has always fresh water for its park, hotels, country houses, and baths, which to Europeans as well as natives is a matter of daily necessity. Frequent rains refresh the atmosphere, and its elevated position gives it a moderate temperature. The nights there are almost cold, and this beautiful, captivating place is the sanatorium of Batavia. It is the summer residence of the governor-general, who has a summer palace in the midst of the botanical garden.

The entrance to the garden is through an avenue composed of six enormous banyan trees, which have grown to such proportions and multiplied their trunks to such extent that it occupies about eight minutes for a carriage to pass through there at a trot. Passing on the left troops of tame deer, one arrives at the governor's palace, surrounded by terraces of flowers. The building, in Grecian style, is of but one story, with colonnade and verandas flagged with marble. The rear is similar to the front, and overlooks a garden in which are two little lakes where the great flowers of the *Victoria regia* spread themselves, with leaves more than 6 feet in diameter, and bouquets of verdure, palms, and dovecotes. On the right we find rows of enormously tall bamboos of all varieties and colors. The gem of Buitenzorg is its collection of palms, the most complete in the world, unless we so consider its success in an economical direction in the propagation of cinchona. At Buitenzorg is also the curious Thierman Museum, containing examples of the different species of the apes of the Sunda Islands, strange birds and insects. Among the former are the Molucca pigeons, large as young turkeys, and a complete collection of those strange insects which resemble so perfectly the forms of dead twigs or the leaves of trees. But that which is perhaps most interesting in the collection is the herd of miniature deer from Sumatra, about 25 Cm. in height.

[To be continued.]

A Street Guard in Batavia.

Tincture of Opium.

HOSEASON proposes (according to Prof. Attfield's Report) to make this tincture from the extract [which the Brit. Pharm. requires to contain only about 20 per cent of morphine]. The directions would be: Dissolve ¾ avoirdupois ounce of the extract in 6 fluidounces (Imp. m.) of water, add 10 fluidounces of alcohol, set aside for 12 hours, filter, and add enough diluted alcohol to make 1 pint.

On the Preparation of Neutral, Aqueous Solutions of Cresols.

AFTER Fränkel had recognized the disinfecting action of cresols, solutions of these bodies were prepared by the intervention of sulphuric acid, since they are practically insoluble in water alone. The acid solution, however, was so caustic that it could not always be used. Next it was attempted to emulsify them by means of soap, or to convert them into a sort of soap by means of alkali. But all these agents are objectionable when the disinfectant is to be used medicinally. The great object was to produce *neutral*, aqueous solutions. This was accomplished by the original manufacturers of salicylic acid under Kolb's patent, who prepared solutions of cresol in a highly concentrated aqueous solution of sodium salicylate. Such a solution may be diluted with any amount of water without throwing out the cresol. It is immaterial which of the three true cresols (meta, para, or ortho) is used, or whether there are any higher boiling phenols present. The salicylate of sodium may be replaced by other soluble salicylates. Hueppe proposes the name "solveol" for all solutions of cresol prepared by the intervention of salicylates.

Instead of salicylates the metacresotates of sodium, etc., may be employed, or else the naphthalinsulphonates.

For medicinal purposes the most suitable solution is probably one containing 0 5 per cent of cresol dissolved by means of metacresotate of sodium. A solution of this strength has a greater bactericidal effect than a 2 or 3 per cent (and in some cases even a 5 per cent) solution of carbolic acid in water.—After *Arch. Hyg.* and *Chem. Zeit.*, 1891, 217.

A Source of Error in Arsenic Determinations by Marsh's Method.

IT is a well-known fact that the evolution of hydrogen gas from dilute sulphuric acid and zinc is rendered more steady and uniform if a few drops of solution of platinic chloride are added. J. Thiele has recently announced (in *Chem. Zeit.*, 1891, 214) that, if arsenic is to be tested for, this addition of platinum must be omitted, since the arsenic reaction is notably interfered with through it, or may entirely fail when only minute quantities are present, probably owing to the formation of arseno-platinum. Tin does not interfere with the reaction.

[ORIGINAL COMMUNICATION.]

PRACTICAL METHODS FOR ZINC DETERMINATION, GIVING EXACT RESULTS.

BY H. E. HOELKE.

I HAVE recently done much work in zinc assays, and have learned something of which I should like to give your readers the benefit. I tried the method in common use (Schaffner's), precipitating with Na_2S of previously established titre, but found it quite unsatisfactory owing to the uncertainty of the end reaction. As indicator I used nickelous chloride, recommended by Mohr, because it is not affected (blackened) by zinc sulphide, as lead or silver salts are; but I found it *not sufficiently sensitive*, for, when a decided change of color was produced on the nickel spot, the liquid smelled quite perceptibly of H_2S. I therefore tried two other ways, which proved highly satisfactory.

The Zn solution, if acid, is rendered slightly alkaline, and precipitated with slight excess of sodium sulphide. After settling and decanting the clear portion the rest is thrown upon a filter, washed with warm water to remove excess of sodium sulphide, then the precipitate filtered, and all is thrown into a solution of ferric sulphate and some sulphuric acid added, when the following reaction will readily take place:

$$ZnS + Fe_2(SO_4)_3 = ZnSO_4 + 2FeSO_4 + S.$$

Pour it all into a graduated cylinder, and fill up to 100 C.c. Shake well and let settle; then pour off 50C.c. or filter (which is really not necessary, as a little suspended sulphur will not interfere), and determine the $FeSO_4$ in the 50 C.c. with $KMnO_4$, and multiply the result by 2. Every 112 units of iron found represent 65 of zinc.

The other way is to use, instead of ferric solution, argentic nitrate (a measured quantity of known strength):

$$ZnS + 3AgNO_3 = Zn(NO_3)_2 + Ag_2S + AgNO_3.$$

I use a titred solution of KCNS, and as indicator a drop or two of $Fe_2(SO_4)_3$, which is Volhard's method, and find it easy and reliable. In the latter method it is necessary to heat the ZnS with the silver solution, to make sure of the complete absorption of the sulphur by the silver.

The excess of silver found is to be deducted from the whole quantity used, representing the quantity combined with the sulphur. The proportion is 216 silver = 65 zinc.

The same principle can be made use of in sugar determination in diabetic urine. The latter is boiled with ex-

A Campong.

cess of Fehling's solution, the cuprous oxide collected and washed on a filter, then immersed in ferric sulphate, H_2SO_4 added, and titred with permanganate (56 units of iron found = 36 glucose):

$$Cu_2O + Fe_2(SO_4)_3 + H_2SO_4 = 2CuSO_4 + 2FeSO_4 + H_2O.$$

The results are quite reliable, if the work is done with ordinary care, and certainly preferable to the tedious methods of spotting for the end reaction.

I am well aware that to any well-posted chemist these methods are not new, but I believe they are not sufficiently appreciated, because I know most professionals stick to the "old way," principally, I believe, because they have not tried them.

ST. LOUIS, MO., August 28th, 1891.

Sodium Salicylate.*

BY J. G. SPENZER, OF COLUMBUS, OHIO.

SODIUM salicylate may contain impurities existing primarily in the materials used in its manufacture, or such as are derived subsequently from the atmosphere (from certain gases, such as ammonia), or which are caused by the influence of light.

This being so, one would surmise, and correctly, that a varying degree of purity must result; in fact, Hager ("Pharm. Praxis," vol. ii., p. 587) thus describes its condition in the forepart of 1877: Gray, white, very white, with little odor or strongly odorous, quite stable or very unstable, more or less strong in taste, likewise in its caustic effects on the mouth, stomach, etc. To which may be added the pink preparation even now met with.

The following fifteen samples have been examined for their purity.

Number 15 is an ether-washed sample of 14, and was used as a standard or check.

APPEARANCE—COLOR—ODOR—STABILITY—SOLUBILITY—REACTION—TASTE—PER CENT RESIDUE—SUGAR—PHENOL—CHLORIDES—SULPHATES—CALCIUM COMPOUNDS—FOREIGN ORGANIC IMPURITIES.

An abridgment of the pharmacopœial requirements will be given here to show subsequently the fallacy of some of them.

Small white crystalline plates or a crystalline powder, permanent in the air, odorless, having a sweetish saline and mildly alkaline taste and a feebly acid reaction.

Soluble in 1.5 parts of water, in 6 parts of alcohol at 15° C. Ignited it leaves an alkaline residue amounting to between 30 and 31 per cent of the original weight.

Agitated with concentrated sulphuric acid, should not impart color in fifteen minutes.

Filtered solution of 1 Gm. in a mixture of 50 C.c. alcohol and 25 C.c. water acidulated with nitric acid should yield no precipitate nor become turbid when tested with barium chloride (absence of sulphates) or by silver nitrate (absence of chlorides).

1. By means of a Coddington lens or microscope, its structure can be determined.

2. *Color* is best distinguished by looking into a break in a mass.

Gray and pink preparations are still found. If the white color has a gray or yellow shade, Hager (vol. iii., p. 758) says it is due to an excess of soda, while if it has a pink or red tint it is due to an excess of salicylic acid; also that the red or pink coloration is noticed sooner when phenol is present.

3. *Odor.*—(*a*) On opening a bottle closed for some time. (*b*) By heating some in a dry test tube by placing it in a water bath, not boiling. (*c*) Odor of the dry ether extract.

4. *Stability.*—Although Allen ("Commerc. Org. Analys.," vol. iii., part i, p. 57) says it is permanent in the air, he corrects the statement (ibid, 58) by saying it is liable to acquire color by keeping, especially if exposed to the air.

This coloration is due, according to Hager ("Pharm. Praxis," vol. iii., p. 758), to the influence of the carbonic acid gas and ammonia in the air. Even when well kept in a tightly stoppered bottle it is difficult to keep it white for a time (ibid., p. 759). The stability of the samples was not looked into, as, for comparison, samples of each made about the same time would be the only criterion.

5. *Solubility.*—(*a*) In water is variously stated:

In less than an equal weight (Hager, ibid., 759).
Equal weight, Rasenack ("Dammer's Lexikon," p. 597).
" " Schmidt ("Pharm. Chem.," vol. ii., p. 751).
In 1½ parts by weight, U. S. P. (1883, p. 301).
" " " " " Allen ("Commerc. Org. Anal.," vol. iii., part i., p. 57).
In 6 parts alcohol, U. S. P. (1883, p. 301).
" 5 to 6 " " Hager ("Pharm. Praxis," vol. ii., p. 537).
" 5 to 6 " " Rasenack ("Dammer's Lexikon," p. 597).
" 8 " " Allen ("Commerc. Org. Anal.," vol. iii., part i., p. 57).

6. *Reaction.*—Neutral or but slightly acid; use of blue and red litmus paper with the alcoholic and aqueous solutions, or by placing some of the dry salt on the moist paper according to E. Geissler (Hager, "Pharm. Praxis," vol. iii., p. 759).

7. *Taste.*—Dry salt and solution.

8. *Per Cent Residue.*—Ignition of a weighed quantity in a platinum crucible to a constant weight: Hager (ibid.) says it should yield not less than 30 or over 32 per cent; Schmidt ("Pharm. Chemie," vol. ii., p. 750), nearly 31.3 per cent; Allen ("Commerc. Org. Analys.," vol. iii., part i., p. 257), 30 to 31 per cent; U. S. P. (1883, p. 302), 30 to 31 per cent.

In no case was it found as low as in any of the above.

If sodium salicylate be considered hydrous, as

Salicylic Acid	76.33
Sodium Oxide	18.34
Water	5.33

the theoretic amount would be 31.35 per cent, as

$$\begin{array}{ccccccc} Na_2O & : & Na_2CO_3 & :: & Na_2O & : & Na_2CO_3 \\ 62 & & 106 & & 18.34 & & x = 31.35 \text{ per cent.} \end{array}$$

If taken as anhydrous, it would be 33.458 per cent, as

Salicylic Acid	80.63
Sodium Oxide	19.57

$$\begin{array}{ccccccc} Na_2O & : & Na_2CO_3 & :: & Na_2O & : & Na_2CO_3 \\ 62 & & 106 & & 19.57 & & x = 33.458 \text{ per cent.} \end{array}$$

The writer thinks 33 per cent of Na_2CO_3 to be nearly correct in the neutral article.

9. *Sugar.*—(*a*) Odor of burning sugar (caramel) on igniting. (*b*) Blackening when mixed with sulphuric acid. (*c*) Reduction of Fehling's solution after boiling with dilute sulphuric acid.

Some authorities state that pure sodium salicylate gives a reaction with Fehling's solution; this is erroneous, however, for beyond a changing of the blue color to a green (characteristic of salicylic acid) it causes no reduction.

10. *Phenol.*—Numerous methods were tried, but as yet a chemical test is wanting which will distinguish with certainty a contamination of sodium salicylate with phenol.

In support of this statement, the following results are given:

(*a*) Extract slightly alkaline aqueous solution with stronger ether, evaporate the latter, gives a greasy deposit if phenol is present. The greasiness of the deposit or its odor can only be used to detect it. Since sodium salicylate is soluble in from 200 to 250 parts of ordinary and 500 parts of chemically pure ether, the residue, therefore, would contain sufficient salicylic acid to hinder or obscure the chemical reaction for phenol, as will be seen later.

(*b*) Rice's test, the officinal test of the Pharmacopœia for detecting carbolic acid in salicylic acid, is not reliable, as it gives a similar reaction for salicylic acid as it does for phenol.

(*c*) Almen ("Baudrimont, Dictionnaire," 1863, 79; Proceedings Ohio State Pharmaceutical Association, 1890, 79) proposes Lex's test, but the test gives with sodium salicylate free from phenol a light amber to a dark-brown coloration, which effectually masks the delicate pale blue on which the value of the test depends.

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* Read at the thirteenth annual meeting of the Ohio State Pharmaceutical Association, Dayton, O., June 9th, 1891.

(*d*) Dragendorff's modification of Jacquemin's test is also faulty, as it gives a bluish-green coloration with the pure salt. Dragendorff has not proposed it as a test for phenol in salicylic acid, but it was used as a substitute for one which Muter (Proceedings Ohio State Pharmaceutical Association, 1890, p. 79; Allen, "Commerc. Org. Anal.," vol. iii., part i., p. 55) has suggested, and with which it is practically identical.

(*e*) Solution of sodium salicylate poured upon the surface of a solution of potassium nitrite in sulphuric acid has proven unreliable, as the latter produces a greenish-blue cast with water alone. With sodium salicylate a carmine-red, easily diffused line of demarcation was produced in all the tubes, but no green coloration in any part of the test; the deep red would have concealed it had it existed.

(*f*) Sulphuric acid and sodium nitro-prusside, like phenol sodium salicylate, gave a rose-red line of demarcation; in all cases samples 1, 7, 8, 10, 12, and 13 gave a dirty greenish-yellow lower margin to the line.

(*g*) Sodium salicylate and nitric acid: 5 grains of sodium salicylate dissolved in ½ drachm water, 7 drops ordinary nitric acid added, and let stand for some hours. Yellowness was caused in 1, 2, 3, 5, 6, 10, and 12; faintest yellow in 4, 7, 8, 9, 11, 13, 14, and 15.

On supersaturating with sodium hydroxide a deeper yellow was produced in all cases.

11. *Chlorides.*—Treatment of the dilute alcoholic solution, as directed in the Pharmacopœia, with silver nitrate.

12. *Sulphates.*—Treatment with barium chloride.

13. *Calcium Compounds.*—Treatment with ammonium oxalate.

15. *Foreign Organic Matter.*—Agitated with concentrated sulphuric acid, should not impart color in fifteen minutes. The production of a faint light yellow or light amber should be allowed, otherwise the test is valueless, as the best samples affect it that much under the conditions of the test. From the results of the preceding, shown in the table, the sodium salicylate now on the market varies in its purity.

That of American manufacture does not answer all the pharmacopœial requirements and is not as good as the foreign article. There was no indication of adulteration. The traces of impurities were undoubtedly derived from the materials used in its manufacture. Still the sale of the bulk article and paper-box packages may be accountable to some extent for the acquirement of color through atmospheric influence.

Sample No. 12, as far as color is concerned, is a little the worst of any the writer has ever seen, whilst samples 7, 8, 14, and 15 are of the same good quality which they have been for the last fifteen years.

It is difficult to find a sample which will not, particularly when closed for some time, be possessed of some odor.

This odor is rendered more prominent by heating in a dry, closed glass-stoppered bottle on a water bath.

Certain corrections might be made in the pharmacopœial requirements, as: It should be soluble in less than or an equal weight of water, in from 5 to 6 parts of alcohol, and both of the solutions to be colorless. It should leave very nearly 33 per cent of residue upon ignition to constant weight.

The acquirement of only a faint amber coloration when agitated with concentrated sulphuric acid.

SODIUM SALICYLATE.

	Appearance.	Color.	Solubility alcohol six parts.	Solubility water equal weight.	Odor.	Reaction Litmus.	Tas te.	Per cent of residue.	Sugar.	Chlorides.	Sulphates.	Foreign Organic Matter.	Calcium Compounds.	Phenol.	Manufacture.
1	Crystalline powder	Faintest pink * Faint amber † Light amber ‡	Entirely soluble except trace Na_2CO_3	Soluble in less than own weight	Normal	Neutral	Sweetish	33.09	None	Faint trace	Faint trace	Light amber	Faint trace	Not appreciable	American
2	do	do	do	do	do	do	do	33.20	do	do	do	do	do	do	do
3	do	Faintest pink Faint amber Light amber, greenish cast	Soluble; trace calcium sulphate	do	do	Faintly alkaline	do	33 29	do	Trace	Trace	do	do	do	do
4	do	Faintest pink Faint amber Light amber	Soluble; trace Na_2CO_3	do	do	Neutral	do	32.98	do	Faint trace	Faint trace	do	do	do	do
5	do	White Colorless Light amber, greenish cast	Soluble; trace calcium sulphate	do	do	Alkaline	do	33 52	do	do	do	do	Trace	do	do
6	do	do	do	do	do	do	do	33.33	do	Trace	Trace	do	do	do	do
7	do	White Colorless Colorless	Soluble; no residue	do	do	Acid	do	32.55	do	None	None	Faint light amber	None	do	German
8	do	do	do	do	do	do	do	32 74	do	do	do	do	do	do	do
9	Granular; microscopical crystalline plates	Yellowish pink Faint amber Light amber	do	do	do	Neutral	do	33 06	do	Faint trace	do	do	do	do	American
10	Crystalline powder	Faintest pink Colorless Very light amber	do	do	do	Faintly acid	do	32.90	do	do	do	do	do	do	German
11	do	Faintest pink Faint amber Light amber	Soluble; trace Na_2CO_3	do	do	Neutral	do	33.08	do	Trace	do	Light amber	do	do	American
12	do	Pink Light brown Dark wine	?	do	do	Acid	do	33.075	do	do	do	Brown	Trace	Phenol	do
13	Granular microscopical crystalline powder	Yellowish white Colorless Light amber	Soluble; no residue	do	do	Faintly alkaline	do	33.28	do	Faint trace	do	Light amber	None	Not appreciable	do
14	Crystalline powder	White Colorless Colorless	do	do	do	Acid	do	32.88	do	None	do	Faint light amber	do	do	German
15	do	do	do	do	do	Neutral	do	33.11	do	do	do	do	do	do	do

* Color of powder. † Color of alcoholic solution. ‡ Color of aqueous solution. ? Soluble, except a brown coloring matter which is insoluble in alcohol, but soluble in water.

Iodine in Norway.

A NEW industry, which promises to become of permanent value to the coast inhabitants of Jœderen, has recently been started in Norway. This is the burning of seaweed, which is found in great abundance on the coast, and the preparation of kelp for the manufacture of iodine.

The Alkaloidal Value of the Commercial Henbanes.

THE following is an abstract of a paper by Mr. A. W. Gerrard, read at the recent British Pharmaceutical Conference (after *Chem. and Drugg.*):

Referring to his paper, read at Leeds last year, on the "Alkaloidal Value of Annual and Biennial Henbanes," Mr. Gerrard said he then showed that both varieties were about of equal strength. At that time he had no intention of carrying the work any further, but soon after the publication of his note he received a letter from Messrs. Evans, Lescher & Webb, saying: "We are sending you 4 pounds of henbane leaves, which, we believe, is the foreign annual plant. It was obtained from Leipzig. We shall be glad to know the result of your examination of the same."

Subsequently, in reply to a note, the same firm forwarded a large sample of French henbane, with the remark, "This is collected in France, and is, we believe, what is there used for medicinal purposes." Mr. Gerrard determined to examine these henbanes and compare them as to value with ordinary commercial English varieties. Judging from appearances and other circumstances, the foreign kinds were, at the very least, two years old; so, to make the comparison as fair as possible, English samples of a not less age were obtained. Though no positive or exact information as to the age of any sample was forthcoming, he is confident that all had been collected two, and possibly some five or six, years previously.

The general appearance of the German henbane was rough. It was composed chiefly of the annual plant, root, stem, fruit, and leaves being present in various stages of development. With it was mixed about one-fourth of its weight of first year's biennial leaves, in some cases with the root attached. A few grasses and some leaves of unknown plants were intermixed. Its odor was somewhat musty and narcotic, and its color dull green.

The French henbane had a very fair appearance, was entirely the first year's biennial kind, consisting mainly of leaves, but here and there a root was found. Its color was pale green, and odor hay-like, scarcely narcotic.

The English varieties used were the second year's biennial flowering tops, in flattish masses of flower and leaf, consisting of the helicoid cyme of the plant collected before the fruit had formed, constituting the highest priced and most valued variety of the English drug. Likewise the first year's growth of biennial leaf. The former was the brighter sample and had the sweeter odor; the latter was darker and more narcotic in odor.

The process followed for the extraction of the alkaloid was exactly the same as that adopted in previous investigations described in the "Year Book of Pharmacy," 1890, page 347. Briefly, it was as follows: A proof-spirit extract was made from 1 Kgm. of the leaves, and the alkaloid removed by ammonia and chloroform. The chloroform residue of impure base was dissolved in pure ether, then shaken out from the latter by hydrochloric acid; again the base was shaken out from the hydrochlorides by ammonia and ether. Finally, the residue from the ether was estimated volumetrically with hydrochloric acid, 1 C.c. being made equivalent to 0.0289 Gm. of base, which may be either atropine or hyoscyamine, as both have the same basic power. The following table shows the result of the examinations:

Whence obtained.	Part used.	Yield of base per 1,000.
Germany..........	Entire annual herb...........	0.295
France............	First year's biennial leaves....	0.398
England...........	" " " "	0.390
"	Second year's biennial tops....	0.451

These results show that the German article is of low quality, containing roundly one-fourth less alkaloid than the French or English leaves, and one-third less than the English tops. Looking at the rough character of the German sample, and the amount of stem present, the result is not contrary to expectations. Mr. Gerrard did not wish to create the impression that this is the kind of henbane commonly used in Germany, as the care he has seen exercised in that country over the selection and storage of herbs leads him to believe otherwise. The fact, however, remains that such henbane is sent to various parts of the world, and presumably manufactured into preparations the quality of which must be very low.

These experiments appear to show that a considerable falling off in the alkaloidal value of the leaves takes place with age, for the fresh leaves examined last year gave an average yield of 0.665 of base per 1,000, while the old leaves now examined only show an average of 0.383 per 1,000. It is safe to say that such a large difference cannot be attributed to conditions of growth or locality, for two of the old low-quality samples were grown in England, and one of them, when fresh three years ago, gave 0.600 of base per 1,000; so it seems certain that deterioration takes place with age.

In conclusion, it is worthy of remark that a bright-colored, well-preserved sample of henbane, whether of the annual or biennial kind, can with certainty be relied on for making good preparations, but old and dark-colored leaves, containing stalks and fruit, should be avoided. It is further gratifying to know that the quality of the English-grown drug is fully equal to that of foreign markets.

Citric Acid as a Normal Constituent of Milk.

TH. HENKEL has found that citric acid is a normal constituent of cow's milk. Sterilized condensed milk regularly deposits a sediment consisting almost entirely of calcium citrate. In a factory of milk products to which Henkel had access, fresh cow's milk is first "purified" by centrifugal machines, then evaporated to one-third in vacuo, and the condensed product heated in hermetically sealed tin boxes so as to sterilize it. Upon standing during several days, there are found in the cans concretions or voluminous precipitates which, when the milk is diluted, fall to the bottom. They consist chiefly of calcium citrate mixed with a little casein.—*Zeitsch. f. angew. Chem.*, 1891, 503.

Concerning the occurrence of citric acid in milk, A. Scheible has contributed a detailed account in *Landwirthsch. Vers.*, 39, 153 (abstracted in *Zeitsch. f. angew. Chem.*, 1891, 503). This investigator found that cow's milk contains between 1.7 and 2 Gm. in a liter, goat's milk 1 to 1.5 Gm., and human milk about 0.6 Gm. The occurrence of citric acid in milk has heretofore been overlooked. Its isolation is quite a task, the process given by Scheible being quite tedious and circumstantial. It depends in the main upon the fact that a mixture of alcohol and ether in definite proportions will dissolve the citric acid, while it will leave undissolved the other constituents of the serum of milk.

Hastening the Reaction between Hydrogen Peroxide and Permanganate.

WHEN a solution of potassium permanganate acidulated with sulphuric acid is made to act upon hydrogen peroxide (dioxide), the reaction is sometimes quite sluggish, though when more permanganate is afterwards added the latter is at once rendered colorless. If, however, the hydrogen peroxide was previously mixed with a little manganous sulphate, the reaction with permanganate will take place fully and at once, at the first contact. It seems that the presence of manganous sulphate—itself one of the first products of the reaction between hydrogen dioxide and permanganate—is necessary for the continuance (or rather commencement) of the reaction. R. Engel, who makes this communication in the *Bulletin de la Soc. chimique*, vol. vi., 17 (*Chem. Centralbl.*, 1891, ii., 338), assumes that permanganate of potassium, when first encountering the manganous sulphate, oxidizes this to manganic sulphate. The latter salt is then decomposed again to manganous sulphate by the hydrogen dioxide.

If the hydrogen dioxide is very pure, and if the sulphuric acid contains neither sulphurous acid nor any nitrose, the reaction between permanganate and the dioxide is very slow. Yet, as these conditions of extreme purity are seldom present together, the tardiness of the reaction under those circumstances has not been noticed or understood up to the present time.

CONSTANT-FEED APPARATUS FOR DISTILLING WATER.

It is a common practice among druggists [not so common as the author believes.—Ed. Am. Drugg.] to obtain the Aqua pura and Aqua destillata required in making their preparations from either the pump or hydrant, and others seem to think that filtered water will answer these requirements. Distilled water is not only absolutely necessary for pharmaceutical purposes, but for general chemical and analytical processes as well. It has been my experience that the methods for producing distilled water, as usually found in the pharmaceutical and chemical laboratories, are not only tedious and expensive, but often inadequate to produce the required amount. In my own experience in pharmacy and the laboratory, there has been no more vexatious problem to solve than how to provide sufficient distilled water with economy of time and expense.

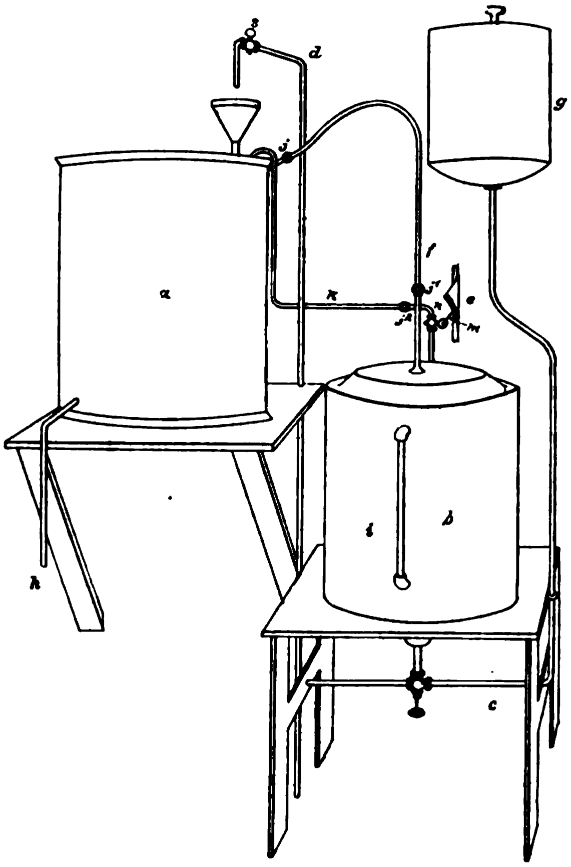
Some few years since I devised and constructed an apparatus which has been entirely satisfactory, and requires so little attention, and withal is so economical to operate, that the distilled-water question has been practically solved for our laboratory. For the benefit of those encountering the same difficulty, I give the construction and operation of the apparatus in detail.

The drawing shown is an outline view of the still as it stands in the laboratory. The condenser, *a*, stands on a shelf fastened to the wall, *b* is the boiler or evaporator, and *c* a gasoline stove supported on a table, while *g* is the gasoline tank. To the boiler is attached the water gauge, *i*, while the steam pipe, *f*, passes to the rear of the condenser. A siphon pipe, *k*, leads the hot water from the top of the condenser to the bottom of the boiler, and the feed is regulated by the gauge cock at *e*.

Cold water is introduced into the condenser through the pipe *d*, which terminates in an ordinary bent gas burner, *s*, and there is an overflow pipe from the condenser not shown in the cut; *j*, *j'*, *j''* are ½-inch brass pipe unions.

The gasoline stove, which is considerably cheaper to operate than a gas burner, is of the single-burner type. The boiler resting on this is made of planished tinned sheet copper of the thickness ordinarily used by tinners, and has the tinned surface turned in; it is 12 inches high by 10 inches in diameter. Both top and bottom of boiler are pressed copper plates, such as are employed for the bottoms of coffee boilers.

The bottom should have the *concave* surface turned out so as to catch the flame and heat from the stove, while the *convex* surface is turned outward on the top. On what is to be the front of boiler shell, and at a distance of 1¼ inches from both the top and the bottom, two holes should be punched on a vertical line, large enough to admit a ¼ inch pipe elbow. These elbows should be soldered on from the inside before the top and bottom are fastened in place. After completing the boiler, a glass tube, *i*, of a diameter to snugly fit the openings in the elbows, should be cut about ⅜ inch longer than the distance between the edges of the elbows, and then fastened in place with a suitable cement. In this case dental cement mixed with phosphoric acid was employed. This will make a water-tight and reliable gauge.



Stine's Constant-Feed Apparatus for Distilling Water.

In the centre of the top is punched a ⅜-inch hole, and a piece of brass pipe of the same diameter and 6 inches in length is soldered in so as to project not more than ⅛ inch in the boiler, and a ½-inch brass union is fitted to the end for attaching the steam pipe leading to the condenser. Brass unions are preferable, as they need no packing and do not corrode so readily. The condenser in this case is 11 by 14 inches, made of zinc, and contains the usual coil of lead pipe. I have, however, suggested the use of a 5-gallon cask, or even of a lard can, with a coil of ⅜-inch lead pipe about 20 feet in length, and found them entirely satisfactory as well as cheap.

To the steam end of the condenser coil is soldered another ½-inch union, *j*. A piece of suitably bent 3/16-inch lead pipe is also soldered on the unions, and when these are screwed up make the steam connection from boiler to condenser. The three unions on the steam and siphon pipes are not strictly necessary, but, as they are not expensive, will repay their cost in convenience when taking the still apart for cleaning and repairs. The distilled water drips from the end of the condenser coil at *h*.

The siphon feed pipe, *k*, is also made from 3/16-inch lead pipe. This should be so bent as to project an inch or so into the top of condenser, and a piece of rubber tubing 1 foot in length is then firmly wired on the end, taking care to make the joint air-tight. The rubber tube must be supported by a bottle ballasted with shot, or other suitable float, so as to keep the end of tube always in the hottest water at top of condenser and about 1 inch beneath the surface. If the rubber tubing is of sufficient length, it will prevent the end of siphon becoming uncovered from carelessness. At *j* is another union connecting the pipe *k* with the boiler; this is screwed on an ordinary gas burner cock, *n*, which is soldered to another ⅜-inch brass pipe, *o*, passing down to within 1 inch of the bottom of the boiler. It may be placed on a line directly back of water gauge, and should be as near the shell as possible to obtain the best circulation of the feed water. To the barrel of the cock, *n*, a 4-inch wire, *m*, is soldered; this moves over an index, *e*, which should be distinctly graduated. This index is made of sheet zinc and tacked to a strip of wood fastened to the wall.

The cold water is supplied to the condenser by the pipe *d*, and falls into a funnel attached to a pipe leading it to the bottom, where, as it becomes heated, it rises and passes off through an overflow pipe so placed as to always keep the end of the steam pipe covered. The condenser may be permanently placed on a shelf, and so adjusted that the surface of the water in it is at least 18 inches above the usual water level in the boiler. This will insure sufficient fall to operate the siphon. I have found it advisable to maintain the water level about 4 or 5 inches from bottom of boiler.

In the operation of the apparatus, steam passes into the condenser and heats the water circulating around its coils as the result of its condensation; this then rises to the top, and there passes off through the overflow pipe and the feed pipe to the boiler.

If the cold water be allowed to just drop into the condenser, it will keep this part sufficiently cool, and the feed water will be passed back into the boiler heated almost to the boiling point, and there will be very little water remaining to escape through the overflow. A good deal of heat will be thus saved and the action be made continuous, resulting in a great saving of time as well. The feed water is so thoroughly heated that most of the dissolved gases are expelled before passing into the boiler, making it unnecessary to throw away the first part of the water distilling over each time the boiler is refilled. With the index, *e*, set at about V on the scale, just sufficient water passes back into the boiler to maintain a constant line in the gauge. After adjusting the fire and the feed, the still is usually allowed to operate for ten to twelve hours, requiring no attention other than to remove the bottles of distilled water when filled.

The capacity of a still with these dimensions is about 1 quart of water per hour, with a moderate fire, burning 2 quarts of gasoline in ten hours. This, with gasoline costing 13 cents per gallon, makes the expense of distilled water about 2½ cents a gallon.—PROF. W. M. STINE, of Ohio University, in *Scient. Amer. Suppl.*, No. 816.

A New Indicator for Alkaline Liquids.

WERNER BOLTON draws attention to a new indicator which indicates the change from alkalinity to acidity, not by the production or alteration of a color, but by rendering the previously clear and transparent liquid *turbid* through the production of a most finely divided precipitate of sulphur.

This indicator is suggested by the author for employment in factories, where titrations have to be performed under circumstances when changes of color cannot be trusted. It may also serve a good purpose in many other special cases.

The indicator consists of a concentrated solution of sulphur in an alkali sulphide. The solution must be concentrated, since only a minute portion is to be used as indicator at one time, and yet there should be enough sulphur to make a visible cloudiness. The author does not give any details regarding the practical preparation of the indicator, but there is no difficulty whatever about making such a solution as the author intends.

The indicator can, of course, be used only in alkaline liquids. Supposing 250 C.c. of such a liquid are to be titrated, it is sufficient, for such a quantity, to dip a glass rod into the indicator, and then to transfer it to the flask containing the solution.

If absolute accuracy is required, a small measured portion of the indicator may be added, and the amount of volumetric acid corresponding to the quantity of the alkaline indicator used deducted from the total amount required.

Titration with this indicator is best performed in Erlenmeyer flasks. The liquid to be titrated, and mixed with a minute quantity of the indicator, must be *heated to boiling* [hence it must not contain any free ammonia or ammonium carbonate], after which the volumetric acid is added. Each addition of acid will, of course, cause a momentary separation of finely divided sulphur, but this will be redissolved by active agitation. As soon, however, as the least trace of acid remains in excess, the turbidity or milkiness will remain permanent. This excess will thus be recognized by the separated sulphur, though it may be so small as to leave litmus paper unaffected.—*Zeitsch. f. angew. Chem.*

Salicin in Influenza.

DR. E. B. TURNER records (*Lancet*, July 18th, page 121) the results of treating two hundred cases of influenza with salicin. He states that, given in doses of 20 grains every hour at first, it will in the course of a few hours reduce the temperature to the normal condition, and convalescence is established as a rule in twenty-four hours. He also considers that it reduces the infectiousness of the disease. The sooner the remedy can be given after the first onset of the symptoms the sooner do the symptoms abate; and, if a case is treated at once after the first shiver, a normal temperature and freedom from pain are insured in about six hours. In the whole series of cases treated by Dr. Turner no complication, such as bronchitis or pneumonia, occurred.

Preparation of Absolutely Pure Hydrogen Peroxide Solution.

ACCORDING to Crismer, absolutely pure hydrogen peroxide solution is best prepared in the following manner:

Barium peroxide is mixed with water [and made into a thin milk], then decomposed by hydrochloric acid of the specific gravity 1.100, and the solution afterwards shaken with ether. The latter dissolves out a portion of the hydrogen peroxide. It is separated and shaken with pure water, to which it yields a portion of the dioxide. The ethereal solution is now separated and again brought in contact with a fresh portion of barium solution. The same operation is repeated several times. Finally there is thus obtained a solution containing 0.5 to 0.9 per cent of hydrogen dioxide which is absolutely neutral and free from other constituents. It contains no chlorine, but a little ether which assists in its preservation, and which may be removed, if necessary, by distillation in vacuo. The percentage of pure hydrogen dioxide diminishes very slowly by keeping.—*Bull. Soc. Chim. Paris* and *Chem. Centralbl.*

Gum Arabic and Gum Senegal.

THE employment of gum senegal as an adulterant of, or even as a substitute for, gum arabic led the author to investigate the properties of these two gums.

Gum arabic forms rounded or angular, colorless, yellowish, or brownish, and strongly refractive little lumps; whilst gum senegal is usually in long, straight or curled cylindrical pieces, but occasionally in mulberry-shaped nodules, and is either colorless or faintly yellow or white, like etched glass, superficially, and lustrous and transparent internally. The two gums are therefore readily detected in the uncrushed condition, but under other circumstances they require further investigation for their identification.

Water dissolves both gums, leaving a residue of wood fibres, these being usually red if from gum arabic and black from gum senegal. Potassium hydroxide and copper sulphate produce a blue precipitate in both solutions; the gum arabic precipitate is more considerable than the senegal precipitate. Moreover, the former is coherent and rises to the surface, whereas the latter is more flocculent and remains disseminated in the liquid. The precipitates are only very slightly soluble on warming, and are not reduced even on boiling. Under similar treatment, dextrin also gives a bluish precipitate insoluble in the cold, but soluble to a clear, dark-blue solution on warming, which solution is completely reduced by prolonged boiling. By heating with dilute potassium hydroxide for some time, solutions of gum arabic or dextrin become amber-yellow; solutions of gum senegal, on the other hand, scarcely alter, or are but very faintly yellow.

Mixtures of the gums arabic and senegal behave, with potassium hydroxide alone, like gum arabic; with potassium hydroxide and copper sulphate, like gum senegal. The blue precipitates from mixtures of dextrin with gum arabic or gum senegal are reduced on boiling, provided the quantity of dextrin is not too small; but when the latter is the case, after thoroughly warming, the precipitate must first be filtered off, then, on boiling the filtrate, reduction takes place if dextrin is present. When both gums as well as dextrin are present, the precipitate is washed, dissolved in dilute hydrochloric acid, and the gums precipitated by means of a large excess of alcohol; when settled, they are washed and examined by the above methods.

The examination of a sample of gum arabic may be conducted in the following manner: Dissolve the powdered substance in lukewarm water, examine residue—any gelatinous matter indicating foreign gums; treat the solution with excess of potassium hydroxide and copper sulphate, warm, filter, and examine for dextrin and senegal as described above.

Gum senegal has been stated to be more hygroscopic than gum arabic; but on drying at 105° the former lost 13.39 per cent, the latter 14.56 per cent, and, on exposure to the moist atmosphere, the former reabsorbed 6.15, the latter 6.34 per cent of water.—L. LIEBERMANN in *Chem. Zeit.*, 14, 665. After *Journ. Chem. Soc.*

Glacial Phosphoric Acid.[*]

A **sample** of glacial phosphoric acid was received from America which was stated to be the quality usually sold in the special market whence it came [United States]; it was imported from Europe. On analyzing it a large quantity of soda was found to be present; it was, therefore, a matter of some interest to examine a few samples, English and foreign, to see what was being sold.

Two English and two German samples were examined. For purposes of comparison a small batch of glacial phosphoric acid was made by the regulation method given in the text books, namely, by calcining phosphate of ammonia. This was analyzed, and the results of the analysis of the other samples were compared with it. The method devised for analysis of the free and combined metaphosphates was a new one, founded upon Thompson's observations on indicators, based upon the facts that dihydrosodic phosphate is neutral to methyl orange, but acid to phenolphthalein, and that hydrodisodic phosphate is neutral to the latter indicator. By this means we are enabled to estimate the *free* and *combined* phosphates. The sample of glacial acid, consisting chiefly of metaphosphates, is boiled, preferably with a known quantity of standard sulphuric acid, for about ten minutes, to convert the metaphosphate into orthophosphate. This is essential, since, though methyl orange reacts identically with metaphosphoric and orthophosphoric acids, with the former acid phenolphthalein gives no definite results. The sample is then titrated with normal soda solution, methyl orange being the indicator. The number of cubic centimeters used, after subtracting the equivalent of the standard acid used for conversion into orthophosphate, represents the *free* metaphosphoric acid—1 C.c. NaHO solution being equal to 0.08 HPO_3. The reaction is:

$$\begin{array}{ccccccc} H_3PO_4 & + & NaHO & = & NaH_2PO_4 & + & H_2O \\ \text{phosphoric acid} & & \text{soda} & & \text{monosodic phosphate} & & \text{water} \end{array}$$

This same solution is then titrated afresh with normal soda solution, using one drop of alcoholic solution of phenolphthalein as an indicator. The number of cubic centimeters used represent the free and combined or total acids. To calculate results, subtract twice the number of cubic centimeters used in the methyl orange determination, and the balance represents the original combined metaphosphate. The reason for subtracting twice the number of cubic centimeters originally noted is that it takes twice the quantity of normal soda to form the salt Na_2HPO_4, which is neutral to phenolphthalein. The reaction is:

$$\begin{array}{ccccccc} H_3PO_4 & + & 2NaHO & = & Na_2HPO_4 & + & 2H_2O \\ \text{phosphoric acid} & & \text{soda} & & \text{disodic phosphate} & & \text{water} \end{array}$$

This is an accurate method, and was carefully checked by the uranium process.

The sodium was estimated by Bettendorff's process (*Zeitschrift für analytische Chemie*, 1888, p. 24), which consists in placing a few grammes of the glacial acid in a known quantity of fuming hydrochloric acid of specific gravity 1.190, allowing to stand twenty-four hours, filtering through spongy platinum, washing with fuming acid, igniting and weighing, allowing for the solubility of the NaCl in the fuming acid (1 part NaCl = 1.348 parts HCl 1.190). The ammonia was estimated by distilling with an excess of soda into decinormal acid, and titrating with methyl orange.

The result of the analysis of sample A—namely, that prepared by calcining phosphate of ammonia—showed that it is not possible to drive off all the ammonium, about 8 per cent remaining. This requires a large percentage of metaphosphoric acid for neutralization. The *free* acid is 48 per cent; combined PO_3, 42.98 per cent. A small percentage of silica was found, which was contained in the phosphoric acid originally employed to make the phosphate of ammonia. Sample B, of English make, was the best in comparison, but contained soda as well as ammonia; the free acid was 52.8 per cent. The sample contained appreciable quantities of arsenic. Sample C is also English, and contains large quantities of soda—in fact, every pound weight of this acid contained soda equal to ¾ pound weight of hydrodisodic phosphate. D and E are both German samples, and contain soda equal to over 100 per cent of phosphate. F is the American sample referred to, and somewhat resembles C in its composition. G is an experimental sample, made by deliberately adulterating phosphate of ammonia with phosphate of soda and calcining. It contains, curiously enough, *ammonia*, whereas in sample H, made by calcining microcosmic salt, $H.NH_4.NaPO_4$, all the ammonia has been expelled.

To sum up the results, the use of soda is discouraged, as it leads to extensive adulteration. A good article, hard enough for all purposes, can be made by adhering to the regulation ammonia method. There is no advantage in having a very hard preparation, if the quality is to suffer so enormously.

The author, in concluding, advises pharmacists to use Bettendorff's test qualitatively; to unhesitatingly reject samples which show soda to be present; to insist upon the article being soda-free, and with no other base than ammonia present; and, in order to insure the percentage of free acid being kept up, to use the simple titration method with methyl orange for free acidity.

GLACIAL PHOSPHORIC ACID.

Sample.	Origin.	Form.	Free HPO_3.	Combined HPO_3.	Equal to $-PO_3$.	Total HPO_3.	Total by Uranium.	Total Base.	Ammonium.	Sodium.	Equal to $\left.\begin{array}{l}Na_2\\H\end{array}\right\}PO_4+12H_2O$	Water.	Silica.	Arsenic.	Total.
A..	Made by ammonia process..	Lump..	48.00	43.52	42.98	91.52	91.84	8.05	8.05	None.	... .	Trace.	0.54	Trace.	99.57
B..	English..............	" ..	52.80	40.00	39.60	92.80	93.14	7.82	6.48	1.34	10.44	"	....	0.08	100 20
C..	"	" ..	46.08	39.36	38 87	85.44	85.40	9.79	0.07	9.72	75.68	5.60	....	Trace.	100.34
D..	German.................	" .	31.68	52.80	52.14	84.48	84.98	14.09	0.05	14.04	109.80	2.40	....	"	100 81
E..	"	Sticks..	36.48	47.36	46.77	83.84	83.70	13.49	0.06	13.43	104.48	3.25	....	"	100.00
F..	European[*]	Lump..	42.21	37.89	37.41	80.10	80.41	10.20	None.	10.20	79.80	10.10	....	"	99.93
G..	Experimental.............	" ..	44.16	46.72	46 14	90.88	90.65	10.10	4.87	5.23	40.67	Trace.	....	"	100.40
H..	Experimental from microcosmic salt.............	" ..	None	.....	.....	.....	78.12	22.50	......	22.50	....	.....	.....	......	99.7

[*] This is the sample referred to as sent from America and being of European origin.

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[*] From a paper by John Hodgkin, read at the recent British Pharmaceutical Conference (after Chem. and Drugg.).

◆

Arsenical Poisoning.—The arsenic scare in Massachusetts appears to have received some support by the case of Dr. B. L. Robinson, assistant in the Gray Herbarium, Cambridge, who is said to have become seriously impaired in health through the arsenic with which the specimens in the herbarium were poisoned. That such a thing is possible, since the poisoning agent must be a *solution* of arsenious acid, or a *soluble* compound of arsenic sprinkled over the plants, is readily understood. It would not be correct, however, to employ this case as an argument to prove the general toxicity of *all* arsenic preparations—for instance, the insoluble compounds in which arsenic is present in wall papers.

Omalofo, a South-African Beer, as a Nutrient.

Dr. Hans Schinz, an authority on South-African botany, who explored the German colonial territory in the southwestern part of Africa, reports that the Ovambo tribes, occupying a territory comprised between about 20° 13′ and 13° 30′ S. lat., are in the habit of preparing a sort of beer from the so-called "coffee corn," derived from *Andropogon Sorghum* Brot. This plant occurs in different varieties, which were described by the author in the "Abhandlungen d. botanischen Vereins der Provinz Brandenburg" (part v., 1891). Regarding the nourishing qualities of the "beer" prepared from this corn, the author makes the interesting statement that it has an extraordinarily nourishing effect. Although it is very generally drunk in large quantities, and some of its effects might be attributed to the alcohol it contains, which is well known to be able to retard waste of tissue, yet he asserts that the natives can exist for many days, without apparent debilitation or injury, on the "beer" alone.

The "beer," or omalofo, as it is called, is prepared in the following manner: The corn or seeds are soaked in water and buried in the ground, probably for the purpose of starting germination. When this has been attained, it is reduced, by pounding, to a coarse meal. This is boiled with water in an earthen vessel, and then filtered in a crude contrivance prepared from palm leaves and pharnaceum grass. The clear liquid is put into calabashes, which are hung up in storehouses and allowed to undergo a slow fermentation. After one or two days the "beer" is ready and can be used.

The coarse meal produced from the corn by pounding is called ontaku. The natives sift this so as to separate the finer particles, which are used for other purposes. This ontaku is not only used to make the beer, but it is also used as food, mixed with the beer. Its nourishing power is materially greater than that of the "beer" itself.—From the work, "Deutsch-Südwest-Afrika," von Dr. Hans Schinz, 8vo, Oldenburg and Leipzig, 1891, p. 300.

Extractum Euonymi Siccum.

[*Preliminary Note by Ed. of Amer. Drugg.*—Extractum Euonymi Siccum was introduced into the British Pharmacopœia ("Additions," 1885) as an equivalent for the commercial *euonymin*, which had become a favorite chologogue with British physicians, and largely entered into the composition of certain popular proprietary laxatives.

At the recent British Pharmaceutical Conference, held at Cardiff, Mr. Michael Conroy read a paper on this subject, of which we give an abstract (after *Chem. and Drugg.*) in the following.

This paper contains a practical hint regarding the powdering of hygroscopic extracts, with the aid of *calcined magnesia*, which may be of service in other similar cases.]

The instructions contained in the "Addendum" to the British Pharmacopœia direct that this article shall be made by exhausting the root bark of *Euonymus atropurpureus* with a menstruum composed of equal parts of rectified spirit (sp. gr. 0.838) and water. The spirit is then distilled off, and so much sugar of milk added to the still fluid extract—the actual amount having been ascertained experimentally—that the final product shall contain 80 per cent of dry extractive. The mixture is then evaporated over a water bath until it becomes brittle. "The mass may then be powdered and kept in a well-corked bottle."

The last sentence is copied verbatim from the directions, and it is in reference to it that this note is presented.

Whatever success may be obtained experimentally in making this article in a small way Mr. Conroy could not say, but it is certain that the process is not suitable for making it in quantity. The method is right enough until it comes to the powdering of the dry extract; but this is a serious matter indeed to the unfortunate individual who has it to perform. It is so extremely hygroscopic that the operation has to be performed in a warm, dry room, and even then it is with the greatest difficulty that it can be obtained in a pulverulent form. But success in this is not of much value, as the powder soon coheres and forms quite a mass again, even in well-stoppered bottles. The author had tried two ways to remedy this defect, each of which is an improvement. In the first the extract was dried on a water bath without the sugar of milk, which was added, in the right proportion, during the operation of powdering instead. This was a great improvement, inasmuch as the extract dried better and powdered much more easily. The gradual addition of the sugar of milk, during the operation of powdering, prevented adhesion of the extract against the mortar, and gave greater freedom to the pestle. The resulting powder was paler in color, and kept very well in stoppered bottles.

The other plan consisted in adding calcined magnesia, instead of sugar of milk, to the soft extract, and in other respects following the official process. This plan in every way proved a success. The extract dried rapidly, and practically lost all its troublesome hygroscopic properties. The operation of powdering was performed easily under ordinary atmospheric conditions, without any special precautions, and the pulverized extract remained a perfectly mobile powder.

Light calcined magnesia was used in the operation, but probably the heavy kind would also answer. The light kind was chosen on account of its greater bulk. As the improvement in the preparation is a mechanical one, due to the fact that the particles of magnesia envelop the powdered extract and thus protect it from atmospheric influences, it appeared that the light kind would go further in this respect.

Samples of the official kind and the two others referred to in this note are on the table for inspection.

Benzoyl-Eugenol, or Benzeugenol.

Following up a suggestion by Dr. A. Nannotti, an Italian physician, regarding the use of oil of cloves for the treatment of tuberculous affections, Dr. H. Thoms, chemical adviser of the firm of J. D. Riedel, Berlin, has been working with the object of producing a body or bodies in which the properties of eugenol (the chief constituent of oil of cloves) might be associated with those of other substances which have proved to be of therapeutic advantage in the treatment of tuberculosis antiseptically. Obviously, oil of cloves is far too irritating for subcutaneous injections, so Dr. Thoms aimed to get neutral compounds of it which would split up in the system. These he has found in benzoyl-eugenol and cinnamyl-eugenol. The former is obtained (*Pharm. Centralhalle*), by a process which is patented, in colorless and odorless crystals with a slightly bitter taste. The crystals melt at 70.5° C., are scarcely soluble in water, but dissolve easily in hot alcohol, chloroform, ether, and acetone. The body is neutral, and gives with concentrated sulphuric acid a purple-red color. *Cinnamyl-eugenol* is odorless, colorless, and tasteless. The crystals melt at 90° to 91°, and behave like the benzoyl compound towards solvents and sulphuric acid. It would appear that these bodies resemble benzosol (benzoyl-guajacol). At present their therapeutic properties are under investigation.—*Chem. and Drugg.*

The Reaction between Arseniuretted Hydrogen and Silver Nitrate.

According to Lassaigne, the reaction which takes place when arseniuretted hydrogen passes through a solution of silver nitrate is the following:

$$\underset{\text{arsenetted hydrogen}}{2AsH_3} + \underset{\text{silver nitrate}}{12AgNO_3} + \underset{\text{water}}{3H_2O} =$$

$$= \underset{\text{arsenious oxide}}{As_2O_3} + \underset{\text{nitric acid}}{12HNO_3} + \underset{\text{silver}}{12Ag}$$

L. Marchlewski has investigated this statement, and finds that the free nitric acid produced in the dilution usually prevailing during the reaction would redissolve the silver or prevent its precipitation in a metallic state.

He believes that the reaction must be a different one, but does not suggest anything in place of it.—After *Berichte*, 1891, 2269.

American Druggist

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The Truth about "Tuberculin:"

UNDER the above title, Dr. Joseph W. Stickler, of Orange, N. J.—a physician who has had special opportunities for becoming familiar with the subject upon which he writes—says, in the *Medical Record* of August 1st:

1. It does not cure pulmonary tuberculosis in either its primary or advanced stage. 2. If administered during the primary stage, it is apt to hasten the progress of the disease. 3. If given during the advanced stage, it is almost certain of hurrying the patient into eternity. 4. It may be given in such small quantities as to produce no appreciable reaction, and yet a very little may, in some individuals, give rise to distressing symptoms. 5. By causing a necrosis of the pulmonary tubercular tissue, it exposes the patient to a risk (septic absorption) which without the tuberculin he does not, to the same extent at least, incur. 6. It is fairly well demonstrated that it liberates the bacilli and favors their migration to distant organs, or to parts of the lungs not originally affected. 7. It creates false hope by producing an apparent temporary improvement. 8. If given for diagnostic purposes, it will probably make the diagnosis clear by giving a fearful, possibly a fatal, momentum to the tubercular lesion, if there be one. 9. It is a poison, and as it has not the power to destroy the bacilli, it is out of place in the animal economy. A tubercular patient has about all the poisons in his system he can tolerate. 10. It is a remedy which thus far has done more harm than good. 11. As it has not the power to cure, or even alleviate, and has the power to make worse or kill, it should not, in cases of pulmonary tuberculosis, be used under any circumstances. 12. If used in surgical tuberculosis, and previously undiscovered tubercular lesions of the lungs be developed by its use, treatment should at once be discontinued. 13. It seems to have the power to arrest the progress of lupus, and in uncomplicated cases may be used without jeopardizing the patient's life. Should latent tuberculosis of the lungs be made manifest by its use in these cases, it should promptly be stopped. 14. As tuberculin is not curative when used alone, and has been demonstrated to be a dangerous agent, it is irrational to use it in conjunction with other remedies in the treatment of pulmonary tuberculosis.

The time has come when the plain truth should be stated, by competent investigators, in relation to the subject under consideration. The results thus far obtained have been discouraging wherever it has been used, no matter how favorable the attending circumstances and conditions as to home, climate, hygiene, etc. I know of none (not one individual) cured. I know of none whose improvement can be clearly traced to the use of tuberculin. You say you know of persons who have been improved by the use of this remedy. If you do, your experience has been at variance with mine. The great majority of observers who have had ample opportunity to test its value, say they have failed of obtaining the gratifying results they had looked for. That it has done great harm in many instances there is not a shadow of a doubt, hence I say it is unjustifiable to continue the use of tuberculin in cases of pulmonary tuberculosis. If it were true that this class of patients had been benefited by it, we might conscientiously employ it; but in view of the fact that such cases cannot be brought forward, the above assertion I consider a safe one to make. So far as surgical tuberculosis, lupus, tubercular glands, and tubercular ulcers of the larynx are concerned, if they be uncomplicated with pulmonary tuberculosis, the remedy may be used with comparative safety. But here again we are confronted by the fact that "cures" are wanting. Let us then be honest and fair in this matter, and say unreservedly just what we believe. I am sure the medical profession received the statement made by Professor Koch in regard to tuberculin with joy and hopeful anticipation as to its future. I am sure the remedy has had a most thorough and searching trial, and such a trial was right and commendable, because the evidence furnished by the early use of tuberculin led us to believe it could arrest the advance of tuberculosis by destroying the tissue in which the bacilli develop and multiply, without compromising the life of the patient. But having made an extensive trial, and having obtained only discouraging results, let us put aside our bottles of "lymph" and look for something which will kill the bacilli. When we shall have found such a remedy or agent we shall indeed have cause to rejoice.

* * *

CORRESPONDENCE.

Perfume Formulas.

Editor American Druggist:

I trust you will pardon my remarking upon the recipes for new perfumes on page 218, that the "*Bouquet d'Amour*" is the old-fashioned "*Rondeletia*" with the rose lessened and the musk left out; that "*Chypre*" is simply *Cologne Water;* and that in the "*Ylang Ylang Extract*" the oil is drowned in the THIRTY pints of alcohol.

Respectfully,
WILL. B. DORMAN.

BOSTON, August 31st, 1891.

The Question of Substitution.

To the American Druggist.

GENTLEMEN:—This morning I received a copy of *The Journalist*, a paper supposed to be devoted to the interest of newspapers, authors, artists, and publishers, nevertheless three and a half pages are taken up by what they call "Fighting the good Fight," *i.e.*, the substitution of own-made medicines for some largely advertised nostrum!

After following the controversy upon this subject in your valuable journal—of which I think I am one of the oldest subscribers—as well as in the *Western Druggist* and various kindred publications, I find it impossible to remain quiet any longer, being fully aware at the same time that the subject itself is becoming threadbare, having been given to us within the last twelve months *ad nauseam*. If you will allow the following a space in the AMERICAN DRUGGIST, it may help some of my colleagues in the drug business to more fully convince them of the proper position to take with regard to the selling, pushing, or cutting of proprietary medicines, or to offering, selling, and recommending a mixture of their own which, as the proprietary medicine manufacturers say, is much better, cheaper, and the composition of which is known to themselves as harmless, etc.

The other side of the question:

First. Are druggists really substituting when they sell an article which has *their* name and address on the label?

In answer, I would say that substituting, in its correct meaning, would be as if, in a prescription, some unprincipled chemist were to put cinchonine in a medicine where quinine had been ordered.

But to sell a customer a preparation of your own make for less money than any advertised article, at the same time being aware of its freshness and other good qualities, can no more be called substituting than if a dry-goods clerk were to sell a lady something cheaper and more durable than the kind she had in her mind when she entered the store. All this is nothing new.

Second. Are all proprietary medicines bona-fide remedies, or are they hurtful, poisonous substitutes for liquors and remedies which are known positively to be used for criminal purposes?

Who can answer question No. 2 after being in the drug business for twenty-eight years, as I have been, without a smile, when he remembers what were the motives of bringing some so-called bitters in the market? Do you remember the strict enforcement of the liquor law? Do you remember how much bitters and schnapps were sold by druggists to make-believe temperance advocates and solid pillars of the church? With the greater laxity of our excise laws, the sale of bitters has fallen off perceptibly. Next in order come the syrups for children. Are you not aware that one certain article alone is positively condemned by eminent physicians as having killed more infants than cholera infantum, or any other two complaints that babies are subject to, have done? Would you not be justified in persuading young mothers who may be anxious to go to a picnic or some other place of amusement, and who would like to have the baby sleep from eight to ten hours on a stretch, from using any kind of soothing syrup?

Finally, under this head belong certain wafers and pills which, although you may be compelled as a business man to keep in stock, you would never dare to mention to a customer of yours who is a real lady.

Third. Are the journalists disinterested parties in this controversy, and are they able to either judge or arbitrate in this matter?

To this question we must all give a very decisive No! For, in the first place, the newspaper men and editors of medical or trade journals are the recipients of large amounts of money from the manufacturers of patent medicines, and from the poor retailer the most they can get is a paltry $1 or $2 for a yearly subscription; so, of course, in consequence their sympathies would naturally be with the man of whom they derive the largest revenue. Even religious papers have been known to advertise some positively known fraudulent medicinal advertisements.

Are journalists able to judge or arbitrate in this matter? must also be answered with a no; for no man is able to judge or understand another man's feelings in regard to a matter of this kind, unless he follow Charles Reade's advice of putting himself in the other's place; for no man, unless he be a retail druggist of long experience, is competent to understand exactly the condition of affairs or able to devise a means by which this crying evil—the whole business of proprietary medicines and their sale at living profits—can be regulated.

Fourth and last arises the question: Who are these public benefactors, these manufacturers of these cure-alls? Are they always druggists, or are they unprincipled Shylocks who are after the pound and shilling of their victims? The reply to the last question is easiest of all, for every druggist knows that, instead of its being the rule that a new proprietary medicine is made and sold by a drug firm, the most heterogeneous elements go to make up companies formed to make and sell a new invention in medicine, as they call it, and many a rich sugar merchant, stock broker, or wholesale butcher has found to his sorrow that the promised millions of Colonel Sellers were not forthcoming.

Again begging to be excused for taking up so much of your valuable time, I remain,

Yours respectfully, R. M.

BROOKLYN, N. Y., August 29th, 1891.

INFORMATION WANTED.

OUR *readers will confer a favor by answering any of the following questions and referring to them by number. We will undertake to forward the answers to inquiries when the request for information is accompanied with a directed envelope and postage. The names of the respondents (unless otherwise indicated) will be published in the next issue of the journal.*

No. 2,538.—**Cuticura Resolvent—Cuticura Ointment** (T. G. L., Puerto Plata, Santo Domingo). The composition of the above is desired.

No. 2,539.—**Sachet Powder** (W. L. C., New York). Formula wanted for Violet Orris Sachet Powder, better known as "Violet Orris."

No. 2,540.—**Unfermented Wine.** Correspondent desires to be informed where he will find medical testimony regarding the unhealthful nature of unfermented wine due to the presence of anti-ferments used for its preservation.

No. 2,541.—**Shellac Black** (F. O., Lexington, Ky.). How may I obtain a very dark black color with a solution of shellac or rosin in wood alcohol? It must be permanent and non-corrosive. [Lampblack.—ED. AM. DRUG.]

No. 2,542.—Address of maker of **Paraffin Paper** (Anon.)

ANSWERS.

No. 2,535.—**Chloride of Gold and Sodium.**—*Correction* (of answer No. 2,535 of current volume).—Our attention has been called by Mr. H. E. Hoelke, of St. Louis, and several other correspondents to an apparent error in the formula for chloride of gold and sodium, given in the above-mentioned article. The formula is in answer to a query particularly referring to gold coin only containing silver as alloy. It was omitted to state that modern gold coin (United States, England, etc.) contains *copper*, and must be subjected to a different process to remove this. We give here an outline of the method: Dissolve 1 part of coin in 4 parts of aqua regia, evaporate the solution to a syrup, dilute with 30 parts of water (filter, if there should be any precipitate), and add a solution of 8 parts of ferrous sulphate in 50 parts of water mixed with 1 part of hydrochloric acid. Wash the precipitated pure gold, dry, and weigh it. Then dissolve it in aqua regia at a gentle heat, evaporate it to dryness, or, at least, to syrup, so as to expel the excess of acid. Again dissolve in distilled water, add 1.54 parts of chloride of sodium for every 1 part of metallic gold in solution, and evaporate, under constant stirring, to dryness on a water bath.

A Curious Property of Sulphur.

IN demonstrating that sulphur, melted at about 115°, can be cooled in paper, the author happened to use a lithographed card of which the edges were turned up. Upon taking away the card he discovered that the lithographed characters were clearly and distinctly impressed upon the cooled surface of the sulphur, and remained after hard friction and washing. By repeated experiments he has been able to get very fine results, removing the paper each time by a mere washing and rubbing process. He finds that sulphur will receive impressions from and reproduce faithfully characters and designs in ordinary graphite crayon, colored crayons, writing ink, typographical inks, china ink, lithographic inks (colored or uncolored), and others. He remarks, too, that it will reproduce with remarkable exactitude geographical maps.—M. CHARLES LEPIERRE, *Bull. Soc. Chim.*, 5, 308, and *J. Anal. Chem.*

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Apéndice Á la Segunda Edicion de la Nueva Farmacopea Mexicana de la Sociedad Farmacéutica de México. Escrita por la Comisión Permanente de Farmacopea. 8vo. México, 1890.

This supplement to the Mexican Pharmacopœia of 1884 has been prepared (according to the preface) by Messrs. Alfonso Herrera, J. M. Lasso de la Vega, S. Pérez, and F. Altamirano. It contains the principal drugs, chemicals, and preparations which have come into use in Mexico since 1884.

While the Mexican Pharmacopœia of 1884 was edited with remarkable care, showing that the text was under the careful control of an experienced editor—and we have reason to know that this was Prof. Alfonso Herrera—this present supplement is a perfect storehouse of blunders. Evidently the final text was not scrutinized by competent persons. Most notable and glaring are the mistakes in the English equivalents which the authors attempt to give to many chemicals or to pharmaceutical preparations. Thus, to quote only a few, we find the following in the text, which are expressly stated to be "Inglés":

Ebonimyn [meant for euonymin]; hidrochinone; oleate of zinci; terpinna [meant for terpin]; elixir of chloridi of Iron; elixir of paraldeida; syrup Lily the valley; mistura of antifebrin [thus always for "mixture of"]; Liquor of Peptonat of Iron and Ammonia; Liquor Perbromure of Iron; Solution officinal of Ergotin; Ergotin suppositoiries, etc.

Some English titles are not given in the text, but are found in the index. Here we find: Glycerina of Creasota; Great-flowret carolinea; Powder of flesh [meant for "powdered meat (or beef)"]; Yodised phenol, etc., etc.

Among the Latin titles we find monstrosities like the following: Oleas sthrycnicus (p. 30); Salycilas bassicus, etc. (32); oleum cum iodophormo (37); camphora naphtolatum (37); gossypi anthiseptici (37); collyrium *ex* Dr. Carmona y Valle (38); collodion sthypticus (38); collodion iodollatus (38); elixir de acidum salicylicum (38); elixir de chloruretum ferrosii (38); elixir maydis stigmatæ (38); elixir cum phosphas ferrosus (38); elixir cum pepsinæ (39); glycerinum cum chloralis, etc. (42); injectio paraldeydæ (43); syrupus de coffea arabicæ (44); syrupus cum lacto-phosphas ferroso-calcico (45); syrupus podophylinæ contra constipatio (45); syrupus chlorureti ferrosus (45); linimentum cephalicum ex Fuller [p. 46; this almost sounds like: Liniment from Dr. Fuller's brains]; pilulæ cum bromureti niquelis (46); pilulæ contra colico ex Sée et Capitan (47); potio glicerinæ ad glycosuriæ (48); pulvis digestivi ex Dr. Chavert (48); pomatum hamameli (49); solutio iodo-taniquæ normal (50), etc.

The botanical names throughout the pamphlet likewise need overhauling. We quote a few specimens: Clematis vitalva (2); Cuicus acantholepis (4); Anagalis arvencis (5); Hamamælis (8); Urostigma nimphæyfolia (13), etc.

Among proper names we encounter: Assa-Gray (8); Podwywotzki (31); Souberain for Soubeiran, p. 11, and even in the preface, p. vii., where we also find "Maish."

Regarding matters of fact there is much to be found which will not stand strict scrutiny. On page 35 the supposed alkaloid "tetano-cannabine" [spelled "tetano canabina"], announced by Hay as existing in Indian hemp, but not found by subsequent investigators (see Flückiger's "Pharmakognosie des Pflanzenreiches," 3d ed., p. 753), is actually quoted among the chemical products, with a detailed formula for its preparation (no dose is given, fortunately). We venture to say that none of the authors has isolated this principle himself, or knows anything about its medicinal properties.

The foregoing list of blunders could be greatly extended, but it is not worth while to do so. It is evident that the editor of this supplement was unequal to the task. We have a high regard for our pharmaceutical confrères in Mexico, and know that such blunders as those we have pointed out could have been avoided had the final revision been put in the proper hands. Hence our advice is to withdraw the present edition of the Apéndice and replace it by a new issue which will bring credit, instead of the contrary, upon the Mexican Pharmaceutical Society.

NEWS AND NOTES.

ENGLAND.

The twenty-eighth annual meeting of the British Pharmaceutical Conference has just been held at Cardiff. For many years now it has been a recognized custom to hold the conference meeting at the same town as that visited by the British Association for the Advancement of Science. By this means increased membership and attendance is usually obtained, whilst extra facilities are provided for pleasant excursions.

Mr. W. Martindale, F.C.S., the president, with whom my readers are acquainted from a description in a previous letter, was fortunate in having placed at his disposal the handsome suite of rooms in the town hall for the reception of members and visitors, which commences the proceedings. The mayor of Cardiff, the Marquis of Bute, and other members of the corporation were present, and a conversazione and concert followed.

The sterner work commenced on Tuesday morning in the lecture hall of the University College, when the mayor formally welcomed the Conference on behalf of the inhabitants of Cardiff. The regular statements as to finances, membership, and executive work were made. Then followed Mr. Martindale's address. As a practical, scientific essay it was admirable, whilst the numerous references to the various difficulties that beset our calling were judiciously and energetically treated. From Koch's tuberculin, the new synthetic remedies, and Pictet's purified chloroform Mr. Martindale flittered to the protection of pharmacy to pharmacists and a higher standard of preliminary examination. At its conclusion Mr. Schacht proposed, and Professor Redwood seconded, a hearty vote of thanks. The reading of papers then proceeded. In point of number, these were far below that of last and previous years. There were only nineteen in all, and more than one presented the appearance of having been hastily concocted to supply the deficiency.

Cripps and Whitby detailed their attempt to ascertain the constituents of ipecacuanha. From the proximate analysis it appears that there were present starch 44.4 per cent, saccharose 2.12 per cent, dextrose 4.06 per cent, dextrin 2.08 per cent, and total alkaloid 2.42 per cent. They were unable to obtain the volatile alkaloid stated to exist in ipecacuanha root by Mr. Arndt, although they admitted the large percentage of alkaloid obtained could hardly be pure emetine.

W. H. Symons gave a short note on an ammoniated tincture of ipecacuanha which, made several years ago, had never deposited. The method was to moisten 1 ounce of ipecacuanha powder with 1 drachm of a 10-per-cent solution of ammonia, and then percolate with water containing 10 per cent of rectified spirit.

M. Conroy, F.C.S., chemist to Messrs. Evans, Sons & Co., Liverpool, criticised the new extract of euonymus that has been inserted in the British Pharmacopœia Additions as a substitute for euonymin. His objections were exactly those pointed out by me in the issue of the American Druggist for April 1st in this column. The preparation is so hygroscopic as to be impossible to keep for any length of time in a pulverulent condition. Mr. Conroy suggested the addition of light magnesia, instead of sugar of milk, to the soft extract.

Dr. Rideal followed with some further information upon "Indian Gums for Pharmacy Work." He has previously contributed on the same subject to the Society of Chemical Industry. and, although he added a considerable amount of scientific data, there was very little new information upon its uses in pharmacy. No attempt was made to suggest a method in filtering a solution or mucilage of gum ghatti (which has usually much impurity present), or to decolorize the same.

R. H. Cripps gave also a note on the volatile oil of copaiba, and described the apparatus by which he submitted the copaiba to the action of steam, easily separating the volatile oil from resin. The proportion of volatile oil present was found to vary from 41 to 60 per cent. No case of turpentine being used as an adulterant was met with.

E. M. Holmes, F.L.S., Curator of the Pharmaceutical

Society's Museum, contributed two useful notes on materia medica. The first was an attempt to show the origin of the different varieties of galbanum. In commerce we have two distinct articles, the Persian and the Levant. Mr. Holmes considers that the former is obtained from *Ferula Schair* and the latter from *Ferula galbaniflua*, whilst the recently introduced liquid galbanum is from some variety closely allied to *F. galbaniflua*. In the second note Mr. Holmes strongly advocated the cultivation of opium in India under better precautions, so as to prepare an article capable of competing with Turkey opium in morphine value.

The public analyst for Cardiff came next with a paper of purely local interest, namely, "The Water Supply of the Borough." That the water contains 28 to 30 parts of total hardness may be a good thing for rickety children, but must be ruinously expensive to soap consumers and manufacturers.

Two papers succeeded on "Henbane and its Seeds." A. W. Gerrard last year showed that the percentages of alkaloid in annual and biennial leaves and tops were nearly the same. He now gave the results of examining German and French henbanes. The alkaloidal yield of these was in each case about half that obtained from fresh English leaves, but not far below that of English dried leaves. The difference was attributed to length of keeping.*

F. Ransom, of Hitchin, reported as to the alkaloidal value of henbane seeds from biennial plants. He obtained 0.058 per cent of crystalline alkaloid from dried seeds. This amount is a little below the yield obtained by A. W. Gerrard in fresh leaves. The presence of 19 per cent of fixed oil and one or two other objectionable constituents caused Mr. Ransom to consider that the seeds could not replace the leaves in pharmacy.

Farr and Wright, two of our young pharmaceutical chemists, followed with suggestions based on analytical experiments as to the best alcoholic menstruum for tincture of henbane. They stated that dilute or strong alcoholic menstrua alike exhaust the drug, but a proof spirit tincture takes least of the chlorophyll out.

J. Hodgkin, F.I.C., F.C.S., gave a purely chemical paper "on Glacial Phosphoric Acid."† It appears that much of that on the market is contaminated with sodium or ammonium.

John Moss read a paper on "Cascara Sagrada," which he has for several years been closely studying. He is of opinion that the age of the bark is not detrimental; that the "fall" bark is not inferior to the spring; that bark from South Oregon is better than that from North Oregon. He found that, although hot water extracts all the virtues, they are not retained on cooling or by the addition of a small quantity of spirit. Proof spirit is the best solvent, and a liquid extract made with this more powerful.

Another public analyst, A. H. Allen, F.I.C., suggested in a lengthy paper a new method of assaying aconite and its preparations by conversion of the aconitine into a benzoate by saponification. Unfortunately a doubt was raised as to the presence of indefinite bodies which are also stated to yield benzoates on saponification, so that there will have to be more work done before accepting this method.

"Eucalyptus Oil" was the title of a paper which included a large amount of analytical data, by R. Davies and T. Pearmain. From these it is evident that eucalyptol (whether it is the active ingredient or not) was present in the other varieties of oil besides that obtained from *E. amygdalina* or *E. globulus*.

S. M. Burroughs, of the firm of Burroughs, Wellcome & Co., gave a short note on an emulsion of malt extract with castor oil. By rubbing these in a warm mortar any proportion of castor oil may be incorporated. The taste is improved by a small quantity of oil of almonds.

A dispensing note, indicating the danger of prescribing Liq. strych. with alkaline Liq. Fowleri, and a report upon medicated lozenges, concluded the meeting.

Excursions were made to several interesting and picturesque places near Cardiff, both by rail and steamer. The meeting was undoubtedly a success, although not so well attended as in former years.

MISSOURI.

A REGULAR meeting of the Executive Board of the Alumni Association of the St. Louis College of Pharmacy was held on August 4th. Prof. Hemm presided.

Dr. Whelpley, for the Committee on Papers and Queries, reported that a programme of alumni lectures to the students at the college had been arranged. This series of interesting lectures will be delivered during the next session by the members of the faculty, Mr. G. H. Chas. Klie and Dr. J. C. Falk.

Prof. Hemm reported his having turned over $241.50 to the treasurer of the college, this being the amount subscribed by alumni members to the college building lot und. The following new members were elected: G. H. Chas. Klie, St. Louis; Luther W. Marshall, Lexington, Mo.; Charles A. Lips, St. Louis; Fred. Wm. Schumacher, Waco, Tex. After transacting routine business the meeting adjourned.
J. C. Falk, *Secretary.*

Kansas City.

Our druggists think it best not to notice the patent-medicine boom which was brought out in our daily papers some days since. Beginning a fight through this channel would only entice the people into the cut-rate stores, while as it is the people have forgotten the agitation of this subject, and things are going on in the same old way.

One dry-goods firm still advertises patent medicines at cut rates, and up to date we have been unable to ascertain their source of supply.

Some druggists in the city still hold to the idea that Mr. A. Frank Richardson was handsomely paid by manufacturers to read his much-talked-of paper before the National Editorial Association, and say it is a stain upon the editorial ability of the members to allow such a paper to be read at the meeting.

Some papers throughout the country have made foolish comparisons of the cost of the druggist's "substitute" and the patent medicine, intimating that the former costs 25 cents, allowing a profit of 75 cents, while the proprietary article costs 75 cents, leaving a profit of only 25 cents. They ignore the fact that the proprietary medicine, including bottle, wrapper, label, contents, and flaming advertising, does not cost the manufacturer over 11 to 18 cents. It is the patent medicine which has established the custom of charging for drugs according to the size of the bottle, and if it should pass out of the trade today prices would soon be gauged according to the cost of the article, and not the size of the package. This would be a benefit both to the druggist and the customer.

NEBRASKA.

At the examinations held by the Board of Examiners of the Nebraska State Board of Pharmacy, Lincoln, August 11th, Omaha, August 12th, and Kearney, August 13th, the members of the board—consisting of J. E. Riggs, Lincoln; Max Becht, Omaha; W. D. Haller, Blair; James Reed, Nebraska City; and Henry D. Boyden, Grand Island—were all present. The following is a list of the successful applicants who received their certificates as registered pharmacists in Nebraska, viz.: S. C. Beede, Surprise; Javan Biggs, Kearney; W. R. Bowman, Hay Springs; Julian Beach, Nashua, Ia.; John B. Bates, Verdigre; John U. Bodenmann, Omaha; E. P. Childe, Lincoln; H. M. Carson, Grand Island; W. T. Carson, Holstein; Butler Cooper, Arapahoe; Henry Clegg, South Sioux City; John S. Clark, Omaha; E. F. Dodd, Newport; Robt. E. Fenton, Omaha; Jno. H. Feltham, Silver City, Ia.; Walter L. Foote, Omaha; J. H. O. Green, De Witt; Chas. W. Gooden, Aurora; W. B. Howard, Lincoln; Albert J. Hoeppner, Holdrege; Niels P. Hansen, Oakland; H. L. Kindred, Herman; J. S. Livesay, Ceresco; W. A. Lee, Creighton; Wm. Nicholas Ley, Omaha; Peter O'Shea, Meadow Grove; Joe M. Park, Waterloo; Jas. A. Rossiter, Bancroft; Jas. A. Van Dyke, Benedict; J. S. Winston, Moorefield; C. Clayton Wentz, Omaha.

The next meeting of this board for examination of applicants for registration as pharmacists will occur at Lincoln, Neb., Wednesday, November 11th, 1891, in the Capitol building, at 9 A.M. sharp.

Henry D. Boyden.

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* See page 284.

† See page 287.

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JAVA AND THE JAVANESE.

(Continued from p. 280.)

THE celebrated botanical garden at Buitenzorg was founded in 1817 by Baron von Kapellen, then Governor of Java. Both art and nature have united to produce one of the most lovely and magnificent parks existing in any country. Every kind of plant or tree which is found in the tropics and is worthy of cultivation for its beauty, shade, economic value, or for purposes of study, is to be found there, not under protecting glass houses, but in the open air, the extent of the gardens and the availability of hill or valley affording every required condition of soil, moisture, sunlight, or shade most favorable for the welfare of each. At the very entrance is a group of lofty tamarinds. A little further on are small bosquets of nutmeg and clove trees, also a variety of different cinnamon trees. Every conceivable kind of tropical fruit tree, including the date palm, and more than fifty varieties of bananas are represented. The collection of palms is the richest anywhere collected in one place. Over two hundred species are represented. Curiously enough, some varieties of oak, notably *Quercus pruinosa*, which usually grow on Java only at heights of between 4,000 and 5,000 feet, flourish in the shade of high palms in favored localities. Considerable tracts are devoted to various species of cotton (*Gossypium*), tea, coffee, pepper, and various medicinal plants and trees. Among the "creepers" is an enormous liana which, when described some years since, was said to wind in circles about the ground and then go over a palm tree and down again, upwards of 300 feet long, 70 yards alone being on the ground. The most important service which the gardens have rendered to mankind is, no doubt, the introduction and propagation of the cinchona tree in Java. This was first attempted in 1852, when the Dutch minister of the colonies, Mr. Pahud, sent Mr. Justus Charles Hasskarl, then in charge of the Buitenzorg gardens, to Peru, with the commission to procure suitable seedlings and fruits or seeds. The botany of the genus cinchona was, at that time, not so well understood as it is now, and Hasskarl was misled by representations of the natives to collect at first the seeds of a variety which was later on known as *Cinchona Pahudiana*, but which turned out to be worthless as a source of alkaloids. Being compelled to remain until 1854, he finally succeeded, under an assumed name, and far in the interior, at the little village of Sina in the province of Carabaya, in obtaining 400 young calisaya plants, which he shipped from Islay in a sailing vessel direct to Java. The plants had been put in Wardian cases, but, in spite of this, all but *two* of them subsequently died at the Buitenzorg gardens. Hasskarl was now put in charge of the cultivation of cinchona, and founded the first plantation at Tjibodas, thirty miles south of Batavia, at an altitude of 4,400 feet. The soil, however, proved

Group of Cultivated Cinchonas in Java.*

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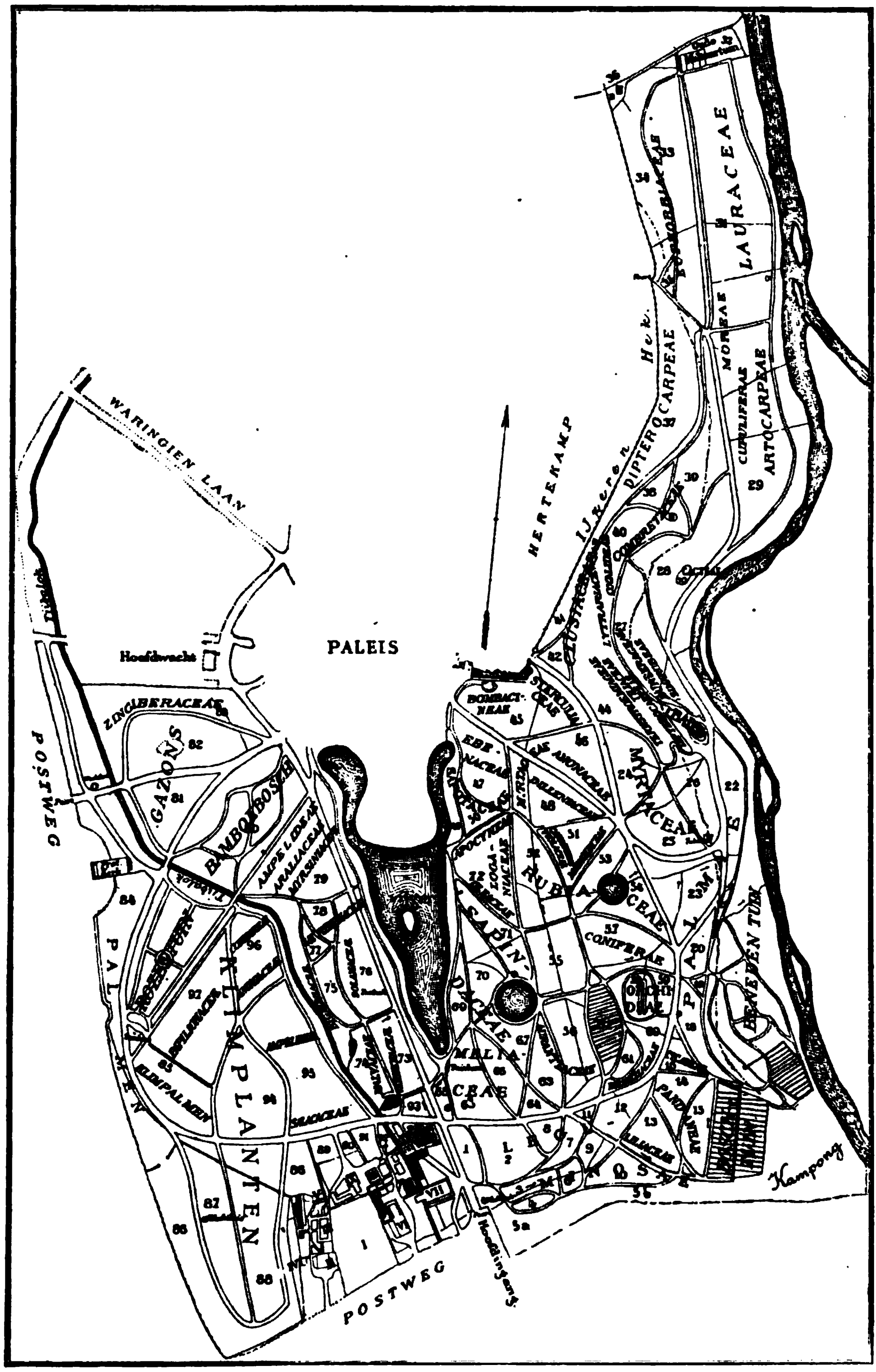
* From "Die natürlichen Pflanzenfamilien," etc., by A. Engler and K. Prantl. Leipzig, 1891.

unsuitable, and the experiment was a failure. A fresh supply of cinchona trees was brought by Junghuhn in 1855, and the latter was entrusted with the supervision of the industry, being joined by Dr. de Vrij as chemical expert. The whole establishment was reorganized by them in 1856, particular care being taken to watch the influence of soil and treatment upon the quantity of alkaloids, and to select only the most promising plants for propagation. On transplanting the unpromising young trees from Tjibodas to a more favorable locality, the trees began to acquire vigor, and finally bore flower and fruit. It was now found that the species which had been cultivated was utterly valueless and that the whole experiment was to be commenced again from the beginning. Nearly a million trees of the worthless species had been planted, and only a small number of genuine calisaya trees were available. Nevertheless the courage of the officials in charge did not flag, and the plantations were gradually stripped of the "Pahudiana" species. In 1865 a supply of genuine calisaya seeds, collected in Bolivia for Mr. Ledger, was put up for sale in London, and half of them sold to the Dutch Government for the Java plantations, the other half being purchased for the British Indian stations. This supply of seeds has proved to be the richest mine ever struck. Not only did the seeds propagate well and without difficulty, but the plant and tree raised from them turned out to be a separate variety of calisaya, subsequently named *Cinchona Ledgeriana*, and to be the richest in alkaloids of all species then known. By careful selection and cultivation it has been brought to such a condition, particularly upon Java, where it is cultivated with preference, that it usually contains from 6 to 8 per cent, and even up to 10 and more per cent, of alkaloids, and always brings the highest price in the bark market.

(To be continued.)



Map of the Buitenzorg Botanical Garden.

On Gaseous Compounds of Nickel and Iron.

The highly interesting discovery made some time ago regarding the existence of a *gaseous* compound of carbon monoxide (carbonic oxide) and nickel, has recently been supplemented by the discovery of a similar compound with iron. This latter discovery has already opened up a wide field of speculation and research, being held to furnish the key to many heretofore dark processes and reactions involved in the metallurgy of iron and steel. In view of the high interest attaching to these gaseous compounds, we give an account of their discovery and properties from a paper by Mr. Ludwig Mond, who discovered and studied these compounds in conjunction with his assistants, Drs. Langer and Quincke:

"A very small quantity of nickel can effect the dissociation of a large quantity of carbonic oxide, and becomes converted into a very voluminous black mass containing varying quantities of carbon up to 85 per cent. This mass takes fire on exposure to air, so that we had to cool it under exclusion of air for the purpose of analysis, which was done in a slow current of carbonic oxide gas. This gas was subsequently led into a Bunsen burner, so as to keep it out of the atmosphere of the room. In this way we observed that when the cooling had proceeded to a certain point (about 150° C.) the Bunsen flame became luminous and remained so, and even became intenser, down to ordinary atmospheric temperature. When the gas, before entering the burner, was heated in a glass tube, a metallic mirror was obtained, while the luminosity of the flame disappeared. We were at first inclined to refer this phenomenon to the presence in the nickel of an unknown element, perhaps to Kruess and Schmidt's gnomium, which at that time still haunted chemical literature. The metal of the mirror, however, gave all and every one of the reactions of nickel with remarkable brilliancy. . . .

"In repeating the experiment with carbonic oxide quite free from hydrogen and moisture, and only contaminated with nitrogen, the same result was obtained. After removing the carbonic oxide by cuprous chloride, and heating the residual gas to 180° C. in aniline vapor, at which temperature nickel quite free from carbon is separated, we found the volume of the gas to expand considerably, and the gas to contain only nitrogen and carbonic oxide. It was thus evident that we had obtained a volatile compound of nickel and carbonic oxide, which, on heating, dissociated into its constituents. The increase of volume proved that one volume of gas yielded four volumes of carbonic oxide, and the determination of the amount of nickel deposited and the carbonic oxide formed led to a proportion of four equivalents of carbonic oxide to one of nickel. To further study the properties of this compound, it was necessary to produce larger quantities, which took us a long time to accomplish. By preparing the nickel in a very fine state of division, at the lowest possible temperature, by reducing the oxide, or, better still, the oxalate, in a current of hydrogen at about 400° C., and by carefully purifying and regulating the current of carbonic oxide, we succeeded at last in forming the compound quite readily, and in obtaining a gas sufficiently rich that on passing it through a refrigerator, cooled by ice and salt, we condensed the compound to a liquid.

"This liquid is colorless, mobile, highly refracting, possesses a characteristic odor, and is very volatile. It is soluble in a large number of organic liquids, such as alcohol, ether, chloroform, benzole, petroleum, tar oils, etc. It boils at 43° C. at 751 Mm. pressure without decomposition, and evaporates rapidly at ordinary temperature in a current of other gases. The specific gravity is 1.3185 at 17° C.; at —25° it solidifies, forming needle-shaped crystals; the pure vapor explodes when suddenly heated above 60°, and even when the tube containing it is scratched roughly with a file. A mixture of the vapor with air explodes violently on the application of a flame. Both the liquid and the vapor are poisonous, the latter approximating carbonic oxide in this respect. According to an investigation kindly undertaken by Prof. McKendrick, the liquid dissolved in chloroform produced, when injected subcutaneously in extremely small doses in rabbits, an extraordinary reduction of temperature, amounting in some cases to 12° C.

"Careful determinations of the quantity of nickel contained in the liquid, made by introducing a weighed quantity into chlorine water and precipitation of the nickel from the resulting solution, led to figures agreeing very closely with the formula $Ni(CO)_4$, viz, 34.33 and 34.26 per cent of nickel, the formula requiring 34.28. The vapor density determined by Victor Meyer's method at 50° was found equal to 6.01; the formula $Ni(CO)_4$ requires 5.89. . . .

"The highly interesting properties of nickel carbon oxide naturally led us to try whether we could not obtain similar compounds of other metals. It seemed a foregone conclusion that cobalt, in every respect so much like nickel, must give an analogous compound. It seemed probable that other metals of the eighth group, and those standing near to nickel in other groups, would also combine with carbonic oxide. We tried a large number of elements, including osmium, palladium, ruthenium, rhodium, iridium, and manganese, by acting upon them in the finely divided state with carbonic oxide gas over a wide range of temperature. We tried it by double decomposition with numerous compounds, including zinc ethyl and mercury methyl; but, with one sole and single exception, without success.

"This sole exception is iron. This metal, too, had for a long time given us negative results; but by preparing it at the lowest possible temperature by reduction of the oxalate in a current of hydrogen, and by acting upon this at about 80° C. with a very slow current of very pure carbonic oxide, I succeeded at last, in conjunction with Dr. F. Quincke, in obtaining evidence that a volatile compound of this element with carbonic oxide exists. The gas obtained imparted a yellow tinge to a Bunsen flame, and yielded slight metallic mirrors composed of pure iron. The quantity of the iron compound in the gas was, however, extremely small. By passing the gas through heavy tar oils—in which the compound is soluble, but from which it cannot be separated by fractionation, as it decomposes, on heating the solution, into iron and carbonic oxide before it volatilizes—and by determining the iron and carbonic oxide so obtained, we ascertained, as far as the very small quantities of the substance at our disposal would allow, that it contained iron and carbonic oxide in the proportion of 1 equivalent of iron to 4.126 of carbonic oxide, or very nearly 1 to 4.

"Since these results were communicated to the Chemical Society (18th of June, 1891), I have continued the study of this body, in collaboration with Dr. Carl Langer, and we have arrived at obtaining it as an amber-colored liquid, which, on standing, deposits tabular crystals of a darker color, and solidifies entirely below —21° C. to a mass of needle-shaped crystals. It boils at 102° C., but leaves a small quantity of green-colored oil behind."—After *Chem. News*, August 28th.

Levosin.

THE new carbohydrate which was discovered by Mr. Tanret in several cereals (rye, wheat, barley, etc.), and announced by him in February last, may be obtained by the following process.

Ground rye is exhausted with alcohol of 50 per cent. The alcoholic liquid is mixed with 2 volumes of alcohol of 94 per cent. This causes the precipitation of a notable quantity of gum. The supernatant liquid is decanted and distilled. To the residue left after distillation some baryta solution is added until it no longer causes any other precipitate but such as redissolves immediately. The liquid is filtered, and to the filtered liquid more baryta solution added until a permanent precipitate is obtained. The liquid is cooled, then the precipitate collected on a strainer and washed with cold baryta water, after which it is decomposed by carbonic acid. The barium carbonate is removed, and the filtrate then evaporated, when levosin still containing some barium is left behind. It is dissolved in alcohol of 50 per cent, the solution mixed with the absolutely necessary quantity of diluted sulphuric acid, and the barium sulphate filtered off. The filtrate is then mixed with alcohol of 95 per cent, which throws the levosin down. This is separated, redissolved in water, the solution filtered, and the filtrate evaporated, when pure levosin is left behind.

Levosin is a white, amorphous, almost tasteless substance, soluble in water in all proportions, very soluble in weak but less soluble in stronger alcohol.—After *Rép. de Pharm.*

Copaiba as a Diuretic.

PROF. IVAN N. OBOLENSKY, of Kharkov, calls attention to the powerful diuretic properties of copaiba balsam, his own clinical experience being fully in accord with that of many British authorities. Obolensky uses the remedy in the form of an emulsion, the daily dose varying from 20 to 40 grains. The drug was tried in nine cases, among which there were four of mitral insufficiency, one of aortic regurgitation, three of atrophic cirrhosis of the liver, and one of abdominal tumor. His observations showed that: 1. The balsam is far superior to ordinary diuretics, including digitalis, convallaria majalis, adonis vernalis, stigmata maïdis, calomel, and sparteïn; 2. Its diuretic action develops very quickly in cardiac and hepatic cases, the daily amount of the urine rising from 700 or 800 to 1,450 C.c., even about the end of the first twenty-four hours, and increasing up to 2,000 C.c. the next day; (3) the effects are lasting, diuresis (after the same dose) remaining equally abundant for weeks; (4) the best results are observed in cases of dropsy of cardiac or hepatic origin; (5) the balsam occasionally causes heartburn with eructation (one case), slightly increased frequency of micturition (one case), abdominal pain with diarrhœa (one case), and some admixture of red blood corpuscles with the urine (one case). The phenomena, however, are always mild, never making it necessary to stop the administration of the drug.—After Suppl. to *Brit. Med. Journ.* August 8th.

Notes on Chemical Drugs and Chemicals.*

Balsam Copaiba.—Some time ago a considerable quantity of balsam of copaiba was brought into the market from the west coast of Africa, but did not find a purchaser, as it was very dirty and there was no information as to its source. A subsequent examination showed that it was genuine balsam of copaiba, unpurified. Hitherto it has always been supposed that the copaiba tree was found only in South America.

[*Note by Ed. Am. Drugg.*—Several recent explorers in the region south of the Congo, along the Kassai and other streams flowing into the latter, have reported the existence of species of Copaifera.]

Camphor.—Since the territory, in Japan, in which camphor is produced has been gradually extended northward, Hiogo has become the chief place of export. Great carelessness is shown in the manner in which the crude camphor is shipped. While heretofore it suffered a loss of only 5 or 6 per cent in transit, it now loses often more than double that amount. This is chiefly due to the fact that it is brought to market in too damp a condition.

Cinchona.—The shipments of Java bark in 1886-87 amounted to 2,000,000 Dutch pounds, and in 1890-91 not less than 6,630,000. This immense quantity is not likely to be maintained or exceeded for many years to come, since the owners of plantations are gradually abandoning cinchona cultivation, owing to the loss it entails upon them. While cinchona bark ruled at the comparatively high prices which made its cultivation so desirable some twenty or twenty-five years ago, the industry has been so overdone that there is no longer any profit in it.

The Javanese cinchona planters contemplate the erection of a quinine factory in Western Java, where the principal plantations are situated, and base upon the satisfactory results obtained in British India through the manufacture of quinine [only an impure form of quinine is produced there, besides a mixture of cinchona alkaloids, called "febrifuge," formerly "quinetum"]. They expect to find a good market for their product in San Francisco. [See Editorial column.]

Duboisine.—This alkaloid [which is really hyoscyamine, obtained from *Duboisia myoporoides*] has recently been highly lauded as an active sedative and hypnotic in cases of insanity (psychosis with excitement). It is said to have this advantage over hyoscine, that it is "not dangerous" [we would not recommend to trust to this assertion.—ED. AM. DRUGG.]. It is administered hypodermically, as sulphate, in doses of about $\frac{1}{60}$ grain ($\frac{1}{30}$ grain per day).

Euphorine (Phenyl-urethane) has been somewhat more in demand as an analgesic and antirheumatic. The dose is about 7 grains, two, three, or four times daily; best administered in wafers.

Euphorenum is the latest "substitute" for iodoform. It is an isobutyl-orthocresol iodide. It appears as an amorphous, yellow powder, of an aromatic odor, somewhat recalling that of saffron; easily soluble in ether, alcohol, and oils. It is very light specifically, one volume possessing only about one-fifth the weight of an equal volume of iodoform. This is a material advantage when it is to be used in substance. According to observations so far made, it is very efficient in ulcerated legs, syphilitic eruptions, lupus, and burns. It is used externally as dusting powder, or in form of ointment (1 to 10 per cent). Internally it may be given, dissolved in oil, in doses of $\frac{1}{4}$ grain up to $1\frac{1}{2}$ grain.

Iodopyrin.—This new derivative of antipyrin is still merely on trial. Curiously enough, a recent patent claim has been filed in which this substance is proposed to be used for etching metals.

Lanolin and Sulphur.—A patent has recently been granted for a sulphurated lanolin, prepared by heating lanolin with 25 per cent of flowers of sulphur. The object is to produce an ointment containing sulphur in an easily absorbable form.

Phenocoll Hydrochlorate.—This substance, which is closely related to phenacetin, being the hydrochlorate of amidacet-paraphenetidine, has been introduced as a new antipyretic and antineuralgic, but does not seem to make any headway.

Resorcin.—Gehe & Co. state that they have never seen any resorcin which was perfectly neutral, as is demanded by the Pharmacopœia. It always had at least a faint acid reaction. It would seem that the latter is a normal condition.

Sulphonal.—The occasional failure to obtain satisfactory results with this hypnotic is no doubt due to its difficult solubility and an improper method of administration. The best method, according to Stewart, is the following: Dissolve 15 to 30 grains in 4 to 6 fluidounces of boiling water, allow the solution to cool somewhat, and administer it while yet warm, with or without the addition of a little peppermint. The effect appears sooner and the sleep is deeper.

Coto Bark.—Gehe & Co. state that the supplies, in first hands, are nearly exhausted, and that it is not intended for the present to renew them. This shows that there is but little demand for the drug in Germany.

Vanilla.—The vanilla market has become completely revolutionized since the commencement of cultivation upon Réunion (Bourbon). Last year's harvest of the three chief localities in the Indian Ocean was as follows:

Bourbon, about	80,000 kilos.
Mauritius "	15,000 "
Seychelles "	18,000 "
Total, about	113,000 kilos.

These immense quantities, of course, throw the Mexican and other commercial sorts quite in the shade.

Sugar of Milk.—The establishment of numerous new factories has still further depressed the market, and is likely to result in overproduction.

Ephedra Vulgaris as an Antirheumatic.

IN a preliminary note in the *Bolnitchnaia Gazeta Botkina*, No. 19, 1891, Dr. P. V. Bekhtin, of Prof. L. V. Popoff's clinic in St. Petersburg, describes a series of therapeutical experiments with the *Ephedra vulgaris*, or "steppe raspberry" (Russ. *Stepnaia malina*), which plant (a member of the natural order *Gretaceæ*, which grows abundantly all over Russia) is regarded by the Russian peasantry as a sovereign remedy for rheumatic and syphilitic affections. The observations were made on sixteen patients, of whom four were suffering from acute articular rheumatism (in one case complicated with pericarditis), two from chronic and two from acute muscular rheumatism, six from chronic and one from rheumatic sciatica, and one from rheumatic osteomyelitis. The remedy was used in the form of an "infuso-decoction" of 1 drachm of powdered stems and roots of the plant and 6 ounces of water, a tablespoonful being given every two hours. The following are the principal conclusions arrived at: 1. The steppe raspberry is decidedly one of the most valuable antirheumatic remedies yet known. 2. The best results are obtained in cases of acute articular and muscular rheumatism. Even on the second day of the treatment pain greatly decreases, and the pulse and respiration become slower while becoming fuller and stronger. In a couple of days the temperature returns permanently to normal and articular swelling completely disappears, and in seven or ten days the patient is quite well. In the complicated case the pericarditis subsided together with the other morbid phenomena. 3. In chronic cases the remedy acts somewhat less rapidly. Of the eight cases, in four (muscular rheumatism) a complete cure was effected, while in the other four (two muscular, two articular) a great improvement was obtained. 4. In rheumatic osteomyelitis and sciatica, however, the remedy seems to produce only slight and temporary amelioration. It may be added that in both the cases all ordinary antirheumatic drugs (salicylate of sodium, antipyrin, antifebrin, salol, phenacetin, etc.) utterly failed to afford any relief. 5. Ephedra invariably has a beneficial effect on the gastro-intestinal tract, habitual constipation disappearing, etc. 6. The remedy also appears to possess a diuretic action, which is especially pronounced in cases of articular rheumatism.—Suppl. to *Brit. Med. Journ.*

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* From Gehe & Co.'s Handelsbericht, September, 1891.

Selected Formulas from the German Unofficial Formulary.

THE Pharmacopœia Committee of the German Pharmaceutical Society had been at work, for a series of years, upon the preparation of an unofficial formulary, on the plan of that first issued in this country. This has recently been issued. It contains 811 titles, among which are many chemicals and crude drugs with definitions or descriptions, in the style of the pharmacopœia. The work contains many articles and preparations which are not used on this side of the Atlantic, but also many others which are more or less in demand. We may observe right here that we expected a larger series of fluid extracts to be introduced, but we find only the following: Fl. Ext. of Cascara Sagrada, Castanea, Caffea (from unroasted coffee), Cotton-root, Grindelia, Hamamelis (from coarsely powdered, hence dry leaves), Corn-silk, and Piscidia. A good many solid extracts are introduced, the utility of some being doubtful. We quote a number of selected formulas, remodelled after the method customary in this country:

Aqua Chloroformi.

[Chloroform Water.]

Chloroform	1 part.
Water	2,000 parts.

Dissolve. Keep protected from light.

Aqua Cosmetica Kummerfeldi.

[Kummerfeld's Wash Water.]

Camphor, in fine powder	1 part.
Acacia, in fine powder	2 parts.
Precipitated Sulphur	12 "
Rose Water	40 "
Lime Water	45 "

Triturate the solids with the rose water gradually added, and finally mix with the lime water.

The preparation is to be shaken before use.

Aqua Dentifricia Bototi.

[Botot's Water, or Tooth Wash.]

Cloves, in coarse powder	30 parts.
Ceylon Cinnamon, in coarse powder	30 "
Anise, in coarse powder	30 "
Cochineal, in coarse powder	20 "
Alcohol	2,000 "
Oil of Peppermint	15 "

Macerate the solids with the alcohol during one week, frequently shaking. Filter, and in the filtrate dissolve the oil of peppermint.

Aqua Ophthalmica Romerschauseni.

[Romerschausen Eye Water.]

Tincture of Fennel	1 part.
Water	5 parts.

Mix them. A milky, faintly green liquid.

(Tincture of fennel is prepared by pouring 150 parts of alcohol upon 30 parts of bruised fennel, then adding 5 parts of oil of fennel, macerating forty-eight hours, and filtering.)

Aqua Rosæ Triplex.

[Triple Rose Water.]

Oil of Rose	12 drops.
Water, lukewarm	1 liter.

Add the oil to the water, shake for some time, and filter. The product should be turbid.

Aqua Sedativa Raspail.

[Raspail's Sedative Water.]

Sodium Chloride	60 parts.
Water	1,000 "
Spirit of Camphor	10 "
Water of Ammonia	60 "

Dissolve the sodium chloride in the water, then add the spirit of camphor and ammonia. The product should be turbid. It should be shaken before being dispensed.

[Our National Formulary gives different proportions; the ammonia is there about double the weight of the sodium chloride.]

Bacilli Iodoformi.

[Iodoform Pencils.]

Iodoform, in fine powder	10 parts.
Cacao Butter	9 "
Castor Oil	1 part.

Mix them in a gently warmed porcelain mortar, and when the mass has been half cooled, suck it into glass tubes having a lumen of 3 Mm., and place these in cold water. When the mass is cold push the pencils out, and cut them into pieces or points of 6 Cm. (2¼ inches) in length.

Charta Antasthmatica.

[Asthma Paper.]

Potassium Nitrate	17 parts.
Extract of Stramonium (inspissated)	10 "
Sugar	20 "
Water, hot	100 "

Dissolve the solids in the hot water, strain the solution, impregnate white filtering paper with it, and dry it.

Emplastrum Adhæsivum Anglicum.

[Englisches Pflaster. Isinglass Plaster.]

Isinglass, cut as fine as possible	50 parts.
Sugar	1 part.
Water	a sufficient quantity.

Heat the isinglass with 200 parts of water in a steam bath until most of it has been dissolved, then strain. Treat the undissolved residue again with 200 parts of water in the same manner. Reduce the united strained liquids by evaporation to 300 parts and add the sugar. When the liquid has become tolerably cool, apply it, by means of a soft, broad brush, upon silk taffeta stretched on a frame, in separate coats, the first three being applied in a cool room, and the subsequent ones in a moderately warm room. Each coat must be dry before the next is applied. The back of the taffeta is coated with tincture of benzoin previously diluted with an equal weight of alcohol.

Fifty Gm. of isinglass are required to prepare 5,000 square Cm. (about 12¼ square feet) of the plaster.

[*Note.*—The above formula differs from that of the U. S. Pharmacopœia for Emplastrum Ichthyocollæ. The latter directs a small proportion of glycerin, which is a decided advantage, as it prevents the coating from cracking.]

Emulsio Amygdalarum Composita.

[Compound Almond Milk.]

Sweet Almonds, well washed	5 parts.
Hyoscyamus Seed	1 part.
Dilute Bitter-Almond Water	50 parts.
Sugar in moderately fine powder	5 "
Magnesia (calcined)	1 part.

From the sweet almond and the hyoscyamus seeds prepare an emulsion with the dilute bitter-almond water in the usual manner. Strain, and to the strained liquid add the sugar and the calcined magnesia.

This preparation should be freshly made when required.

[*Note.*—Dilute bitter-almond water is prepared by diluting 1 part of bitter-almond water (Pharm. Germ., iii.) with 19 parts of water. The official bitter-almond water of the Germ. Pharm. contains 1 per mille of hydrocyanic acid; hence the diluted water contains 1 part of hydrocyanic acid in 20,000 of water.]

Emulsio Amydalarum Saccharata.

[Almond Milk.]

Sweet Almonds	10 parts.
Syrup	10 "
Water	a sufficient quantity.

From the sweet almonds prepare an emulsion in the usual manner, using such an amount of water that the strained product amounts to 90 parts. In this dissolve the sugar.

Ferri Citras Effervescens.

[Effervescent Citrate of Iron.]

Sodio-Pyrophosphate of Iron	24 parts.
Citric Acid	60 "
Sodium Bicarbonate	60 "
Sugar	120 "

Mix the substances [which should be in moderately coarse powder], and warm them very gently in a porcelain mortar, under a continuous trituration, until the mass agglutinates. After having been allowed to cool, the granular mass is passed through a moderately fine sieve, and the product kept in dry, well-stoppered vials.

White granules, soluble in water with evolution of carbonic acid, and possessing a mild, agreeably acidulous taste.

The product should be protected from light.

New Method of Determining Phenol.

L. CARRÉ weighs 10 Gm. of pure phenol, and makes up its solution to 1 liter, and with this he prepares a series of standard liquids progressively weaker at 5, 4, 3, 2, 1 Gm., 0.8, 0.6, 0.4, 0.2, 0.1 Gm. per liter. Suppose we have a solution of phenol. If it is concentrated it is first diluted to one-tenth. Of the dilute liquid 25 C.c. are taken and introduced into a flat-bottomed flask with 5 C.c. of nitric acid. Similar portions are taken from the standard solutions, and all the flasks are placed on one and the same water bath for one or two hours after each has received an equal admixture of nitric acid. All must be heated for exactly the same length of time. Under these conditions there are produced nitro-phenols in proportions which depend evidently on the respective quantities of the elements coming in contact. The coloration found in two experiments having the same concentration of phenol, heated for the same time and in the same manner, is always strictly equal. A preliminary examination will permit us to eliminate the standards the coloration of which deviates too far from that of the sample under examination. To obtain further precision after the action of nitric acid at the temperature of the water bath, we add 20 C.c. of caustic soda and make up the volume to 50 C.c. We filter, if necessary, and compare the specimen with the standard which approaches nearest to it in shade, with the aid of the colorimeter. The author has thus found 3.52 Gm. and 0.09 Gm. phenol per liter, the real quantities being 3.50 and 0.10 Gm. If alcohol is present it must be driven off. Impure phenols must be heated long enough to destroy the tarry products present.—*Compt. Rend.*, 113, and *Chem. News.*

Borax and Chloral.

THE growing practice of ordering "borated chloral," or a mixture of borax and chloral, for certain throat affections has induced a French pharmacist, M. Dujardin, to publish a note calling attention to the fact that the product supplied will vary with the temperature at which it is prepared (*Bull. Gén. de Thér.*, July, p. 91). When the solution is made in the cold, as the borax is without perceptible action on chloral at a low temperature, the latter will remain intact in the solution. With the application of heat, however, the two compounds will react, and chloroform will be liberated from the chloral and may remain in the liquid. Should the liquid be allowed to boil for a few minutes, the whole of the chloral would be decomposed and the resulting chloroform would volatilize. M. Dujardin therefore recommends that if in making this preparation heat be used to dissolve the borax, the solution should be allowed to cool before adding the chloral.—*Pharm. Journ.*

NEW FILTER PRESS FOR LABORATORIES.

THE use of the filter press for the separation of precipitates is well known, as are also the services that it is daily rendering Yet it has been found that in certain cases it furnishes but imperfect results, especially when it is a question of filtering bodies that do not pass through ordinary fabrics. Great difficulties present themselves whenever it is necessary to employ special filters, or when modifications in the temperature or pressure become necessary. Recourse had to be made, for laboratory tests, to costly and complicated apparatus.

The apparatus recently proposed by Mr. Lefranc, which we illustrate herewith, remedies these inconveniences. The apparatus permits of making all laboratory examinations without installation and without machines. It is made of ebonite, so as to resist acids. It may, however, be made of any other material, such as bronze, cast iron, tin, etc.

Fig. 1 gives a view of the apparatus taken apart.

Fig. 2 shows it in operation.

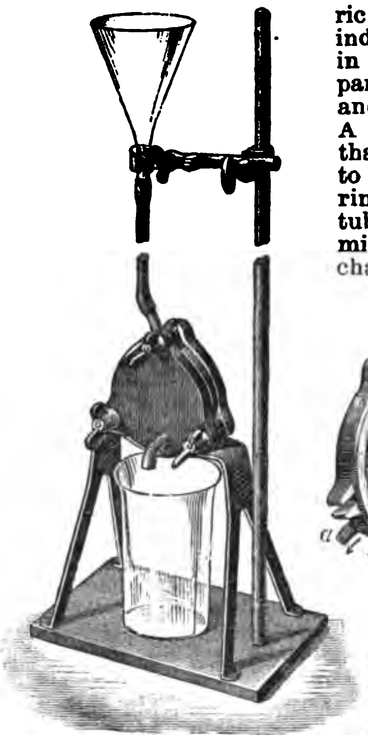

FIG. 2.

The filtering material, fabric or paper, is placed, as in industrial filtering presses, in a box formed of three parts: the ends, A and B, and the ring, D. The ends, A and B, contain grooves that lead the filtered liquid to the tubulures, *a b*. The ring, D, is provided with a tubulure which leads the mixture into the filtering chamber.

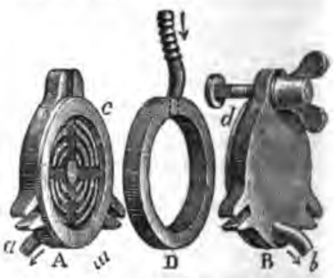

FIG. 1.

The filtering material, placed on each side, forms the filtering chamber. Tightness is obtained by rubber washers, fixed to the plates A B, against the ring, and by three thumb nuts. Above there is a funnel, into which is poured the material to be filtered. A height of five or six feet is sufficient for most tests.

We have thus, on the one hand, the filtered liquid, and, on the other, the cake, which it is easy to gather or to weigh through the increase in weight of the filter.

It is possible also, with the Gay-Lussac pump in use in all laboratories, to place ourselves in the exact conditions of the industries by employing strong pressures. We may also connect the tubes, *a* and *b*, with a receptacle in which a vacuum is formed, and thus obtain a rapid filtration, in which will be combined the action of depression with that of compression.

The apparatus is compact, and the filtering surface is of 15½ square inches. It will, therefore, be easy to calculate the rendering of industrial apparatus, and the comparative value of various fabrics, either as regards resistance or filtering value.—*Le Génie Civil.*

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Antinervine.—The substance which has also been called salicyl-bromanilide is, according to Ritsert, a mixture of

Ammonium Bromide	25 parts.
Salicylic Acid	25 "
Acetanilide	50 "

Note on Celluloid.

M. De la Royne describes the composition, manufacture, and properties of celluloid in the following manner in the *Revue de Chimie Industrielle:*

Celluloid is not obtained by a single operation. A very thick collodion is first made, in which the ether is replaced by camphor, and which, therefore, contains pyroxylin or nitrocellulose, camphor, and alcohol; sometimes, and this is the method adopted in Germany, ether is also added. This collodion is brought to the consistence of a paste, slightly heated, and rolled; the heat, which is gradually increased, removes the volatile solvents, and the pyroxylin and camphor combine in more intimate manner to produce a horny, transparent substance.

A German chemist, who has made numerous experiments with celluloid, has expressed the opinion that the product is not the result of a true chemical combination, but of an action resembling that which takes place in leather. In support of this statement we quote the chemical composition of two different kinds of celluloid, as given by M. Boekmann:

	A.	B.
Pyroxylin	64.89	73.70
Camphor	32.86	22.79
Ash (and coloring matter)	2.25	3.51
	100.00	100.00

The first of these analyses shows the composition of celluloid as made at Berlin; it is generally met with in commerce in the form of sticks. The second is of that made in Berlin, which is usually found in plates of varying size.

The nitrocellulose itself can be made in various ways; either paper, cotton, or shavings can be employed. The cellulose is placed into glass vessels containing a mixture of one part of fuming nitric acid with two parts of sulphuric acid, and the temperature kept at about 22° C. The soaking continues from three to twenty minutes, according to the nature of the material. According to another process, 115 Gm. of sulphuric acid of specific gravity 1.84, and 93 Gm. of nitric acid of specific gravity 1.40, may be heated together to 80° in a porcelain dish. As much cotton as possible is immersed in this liquid, and, after soaking for five minutes, washed freely in water. The product thus prepared is completely soluble in alcohol.

M. Franchimont states that when paper is treated with a mixture of sulphuric acid and acetic anhydride, a colored liquid is formed which gives a precipitate with water. The powder thus formed, after washing in a large quantity of water and then with cold alcohol, dissolves in boiling alcohol, and crystallizes out, on cooling, in needles or plates. This substance is almost insoluble in ether, dissolves in benzin, and melts at 212° C. It corresponds to the formula $C_{40}H_{54}O_{27}$, and is looked upon by M. Franchimont as a triglucoside containing eleven acetyl groups.

The pyroxylin, prepared as above described, is left for twenty-four hours in contact with 15 to 35 parts of camphor and 11 of alcohol of 90 per cent strength; a gelatinous mass is thus obtained which is solidified by heat, the alcohol being driven off. This mass is usually rolled between metal cylinders heated by steam on the inside, the external surface being kept at about 60°, and this rolling is continued, the cylinders being gradually brought closer together, until the sheet is about 12 Mm. thick and has the wished-for strength and consistence.

Crude celluloid is a horn-like, transparent mass, of slightly yellowish color, and of specific gravity 1.25 to 1.45. Heat softens it and renders it capable of taking impressions. At 90° it becomes very plastic, and on further heating it becomes still softer, but when heated for some time at 140° the camphor volatilizes and the pyroxylin is left.

It readily kindles, and burns with a smoky flame like turpentine; it can be extinguished by vigorous blowing, but continues to disengage thick vapors of camphor (sometimes it burns with great rapidity, and is extremely dangerous for some purposes; moreover, it softens with heat, a great disadvantage for many applications). It is not affected by percussion, and cannot be fired even by fulminating caps.

Sulphuric acid rapidly decomposes celluloid on heating, while hydrochloric acid attacks it much less vigorously. Nitric acid slowly attacks it in the cold, very rapidly on heating, and the same is true of caustic soda. Acetic acid dissolves it, giving a solution from which water precipitates camphor and nitrocellulose. It is also soluble in ether, acetic ether, acetone, fatty oils, alcohol, and turpentine.

In order to imitate marble, ivory, or shell, the celluloid must be colored either uniformly or in stripes. This is done in the first case by introducing the coloring matter —usually mineral powders, oxide of zinc, salts of baryta, strontia, copper, lead, mercury, etc.—while the mixture of nitrocellulose and camphor is being worked. In the second case, pastes of the requisite shades are first prepared, which are rolled and placed in moulds. The harmonious arrangement of colors depends entirely on the skill of the workman.—*J. Soc. Chem. Ind.*

Liquid Persian Galbanum.

Mr. E. M. Holmes read a paper on this subject at the recent British Pharmaceutical Conference, of which the following is an abstract:

This paper dealt with the origin of the official galbanum It is stated that galbanum is derived from two plants—*Ferula galbaniflua* and *Ferula rubricaulis*—and although Dr. Aitchison has of recent years done something to clear up the haziness which surrounds our knowledge on the subject, the author was of opinion that we are anything but clear regarding it. Commercial galbanum is of two kinds, Levant and Persian. The specimens of the former in the museum of the Pharmaceutical Society consist of (1) tears, (2) small lumps, and (3) agglutinated masses somewhat soft and containing a portion of adherent root. Persian galbanum is found in tears, and also as a brownish liquid of the consistence of Venice turpentine. Mr. Holmes fully described the characteristics of all these varieties, and their behavior towards reagents, and concluded, from a bibliographical review of the whole subject and a short examination of specimens, that all commercial varieties of galbanum come from or through Persia. Speaking of the various plants to which the origin of the gum resin has been attributed, he expressed the opinion that botanists have often been misled by natives, perhaps not intentionally, but because the same name is in the East often applied to different substances. For instance, Dr. Aitchison found *Ferula galbaniflua* (Boiss. et Buhse) in Afghanistan, and considered that this was a source of the drug; but Mr. Holmes has been able to prove, from the resin contained in this plant being different from ordinary galbanum, that it is not the source of the commercia drug. With it the whole subject of the origin of the liquid galbanum is, of course, involved, and he is led to the conclusion that the liquid Persian galbanum of commerce is derived from an undescribed species of *Ferula* allied to *F. galbaniflua*. In chemical characters, liquid Persian galbanum agrees closely with Levant galbanum, but differs markedly in odor, and the fruits found in it nearly approach those of *Ferula galbaniflua* Boiss. *Ferula rubricaulis* Boiss. does not yield galbanum, but a gum resin of alliaceous taste and odor; nor does the *Ferula galbaniflua* of Aitchison afford galbanum.

Tannin in Urine.

The author recommends the following test: Four to five C.c. of urine, either after remaining a short time or warmed, are mixed with 5 to 10 drops of iodine solution (1:10); the urine is shaken after the addition of each drop of iodine. In the presence of tannin a beautiful and characteristic green coloration is produced; with excess of iodine the coloration becomes brownish-red. In the absence of tannin the iodine is at first absorbed and then a red coloration is produced, which changes to reddish-brown on the addition of more iodine.—S. Kathrein in *Chem. Centralbl.* and *Journ. Chem. Soc.*

Milk of Sulphur.

Ever since the passage of the British Pharmacy Act, there has been much trouble caused by the varied interpretations put upon the terms "milk of sulphur" and "precipitated sulphur," and many prosecutions were had and fines imposed for dispensing or selling that which the purchaser may have actually intended, but which the term under which it was asked for did not justify. In his recent "Report on the British Pharmacopœia" (for 1890) Prof. J. Attfield devotes considerable space to the questions involved, and he even proposes to legalize the interchangeability of the above-mentioned terms by making "milk of sulphur" an official synonym of "precipitated sulphur." While we do not approve this, believing it preferable that the term "lac sulphuris," or "milk of sulphur," should either be allowed to die out gradually or at least be restricted to what it originally designated, yet Prof. Attfield's paper contains so much interesting matter that we lay a considerable portion of it before our readers.

It will be seen that, so far as Prof. Attfield's information goes, no calcareous precipitated sulphur is made in the United States or in any other country except Great Britain. We have been told, however, that it has been made here, at least some time ago. Whether any of it is still on the market we are unable to say. All the precipitated sulphur examined by us was free from calcium sulphate.

Prof. Attfield says:

Sulphur Præcipitatum (*Precipitated Sulphur*).—Suggested synonyms, *Lac Sulphuris*, Milk of Sulphur.

It will be necessary to treat these names and synonyms somewhat fully, in order that there may be no mistake in future as to their true significations. At present the whole subject is in a state of confusion.

The London Pharmacopœia of 1721 gave the first process of lac sulphuris, offering such a choice of one of two leading materials as would, we now know, afford practically pure precipitated sulphur on the one hand, or precipitated sulphur mixed with more or less sulphate of calcium—dependent partly on the extent of edulcoration, but probably always with much, sometimes two-thirds, of this calcareous substance—on the other hand. The London Pharmacopœia of 1746, omitting one of the two materials just alluded to, gave a process for sulphur præcipitatum which would, we know, afford only the mixture of precipitated sulphur with more or less sulphate of calcium, and pointed out that lac sulphuris was the usual name for this product, but that sulphur præcipitatum was to be the new name. The London Pharmacopœia of 1788 set forth a process for sulphur præcipitatum that would yield practically pure—that is, non-calcareous—precipitated sulphur; and Dr. Healde's translation of the London Pharmacopœia of 1809 also gave for "Sulphur Præcipitatum, P. L. 1787, P. L. 1745; Lac Sulphuris, 1720," such a lime-and-hydrochloric-acid process as would yield what is known as pure precipitated sulphur, which process and name have been retained officially to the present time, with the exception of the period from 1836 to 1851, when sublimed sulphur alone was official. The last London Pharmacopœia, that of 1851 to 1864, was best known to pharmacists by Phillips' translation, in which the process just alluded to is introduced by the following list of names and synonyms: "Sulphur Præcipitatum, P. L. 1824. Precipitated Sulphur, Lac Sulphuris, P. L. 1721. Sulphur Præcipitatum, P. L. 1746, P. L. 1788, P. L. 1809." Other leading authorities—Gmelin, "Chemistry"; Pereira, "Materia Medica"; Redwood, "Pharmacy"; Squire, "Pharmacopœias Compared"—and all British authors of repute, though they also allude to the calcareous article, treat "precipitated sulphur" and "milk of sulphur" as one and the same thing. Many, probably most, British pharmacists of the present day apply the name "milk of sulphur" indifferently to the calcareous and non-calcareous varieties of milk of sulphur.

Respecting sulphur obtained by precipitation, therefore, we have in Great Britain two quite different things, each represented by the same two names. We have calcareous precipitated sulphur, and we have non-calcareous precipitated sulphur. The former has been, and will always be, liable to be, termed "precipitated sulphur" "milk of sulphur."

In other countries no such state of confusion exists, for the simple reason that, while two names, "precipitated sulphur" and "milk of sulphur," are everywhere used, *two things are unknown*. The calcareous precipitated sulphur is *never manufactured*, *never used*. It appears to have been imported into the United States from Great Britain under some misapprehension (Proceedings of the American Pharmaceutical Association, vol. xix., pp. 60, 61, and 346); but outside the British Empire calcareous precipitated sulphur is practically unknown to the civilized world. Other peoples use only the precipitated sulphur which is unmixed with precipitated sulphate of calcium, and which sulphur they term indifferently "precipitated sulphur" and "milk of sulphur." The processes prescribed for its preparation in official and other books, and its stated characters and tests, suffice to prove that outside our empire the calcareous precipitated sulphur is unknown. That in other countries the terms "precipitated sulphur" and "milk of sulphur" mean one and the same thing, and that both terms are freely employed in most countries, the following references will establish. Lochman's translation of the German Pharmacopœia of 1884, published in the United States: . . . The original source of the confusion in Great Britain, caused, not by calcareous precipitated sulphur being termed both "precipitated sulphur" and "milk of sulphur," nor by non-calcareous precipitated sulphur being termed both "precipitated sulphur" and "milk of sulphur," but by each of these two different substances being called by the same two names, is not easily explained—first, because the genesis of the term "milk of sulphur" has not been made out satisfactorily; secondly, because we do not know whether to set down to pharmaceutical accident or to therapeutic design the production of both varieties under P. L. 1721, and the calcareous variety only under P. L. 1746. The name "milk of sulphur" was probably applied to the *milk-like fluid* obtained on adding an acid to an aqueous solution of a polysulphide, afterwards being retained for the sulphur precipitated from that fluid. (See the following work, quoted by T. B. Groves in the *Pharmaceutical Journal*, 3d series, vol. vii., p. 18: the "New Dispensatory," printed for J. Nourse, 1780.) If this be so, a simple pair of experiments will show that each fluid must have been equally milk-like, the fluid containing suspended sulphur only, and the fluid containing the mixture of suspended sulphur and suspended hydrous sulphate of calcium; hence, that neither could have had a monopoly of the name "milk of sulphur" through it alone having a milk-like appearance.

If, as some specious pleaders have argued, the calcareous precipitated sulphur was probably the original "milk" of sulphur, because its color would be likely to obtain for it such a name, whereas the color of the non-calcareous precipitated sulphur would not suggest the term "milk," it is very remarkable that the compilers of the 1746 Pharmacopœia (who first definitely ordered what may be distinguished as the calcareous precipitated sulphur) should of all persons have desired the name "milk of sulphur" to be changed to "precipitated sulphur." It would be natural to give the name "milk of sulphur" to a milk-like fluid of which the chief and invariable component was the old mineral or sublimed sulphur of the first three London Pharmacopœias, 1618, 1650, and 1677; it would not be unnatural to retain that name in 1721 for the sulphur deposited from the milk-like fluid, seeing that it both resembled and differed from the original sulphur; and it would be natural to change that name, in 1746, to "precipitated sulphur," because of the incongruity involved in retaining the name "milk" for a pulverulent substance. Probably the presence of hydrous sulphate of calcium in the "Sulphur Præcipitatum," P. L. 1746, was an accident, and, so far from being designed, was not considered of any moment. Perhaps it was not even known to be present; for there is no good evidence forthcoming that precipitated sulphate of calcium has or was ever considered to have any therapeutical value.

Whatever be the history of the matter in this country, and whatever the practice in other countries in past or present times, it is at least quite clear that in England the pharmacopœias have, at different dates, recognized both non-calcareous precipitated and calcareous precipitated sulphur. Moreover, the calcareous sulphur has officially been termed both lac sulphuris and sulphur præcipitatum. Not only so, but the non-calcareous precipitated sulphur also has been, officially, termed both lac sulphuris and sulphur præcipitatum. Hence neither substance can claim unquestionable monopoly of the name precipitated sulphur; neither substance can claim unquestionable monopoly of the name milk of sulphur.

Following the lead of the pharmacopœias, medical practitioners, pharmacists, and the public from time to time appear to have favored now one and now the other of these two varieties of sulphur, terming the calcareous variety both *milk of sulphur* and *precipitated sulphur*, terming the non-calcareous variety both *milk of sulphur* and *precipitated sulphur*, a natural and excusable conservative feeling often inducing individuals to continue to favor the variety and name to which they had become accustomed, even though that variety and name had perhaps ceased to be current in the Pharmacopœia of the time. Continuing to follow the official lead, and the pharmacopœias above mentioned having ceased for a hundred years to recognize the calcareous variety, most medical men have gradually ceased to use it, and many druggists have ceased to sell it and have successfully induced their customers to purchase only the non-calcareous variety, the purchasers themselves, however, in the majority of cases continuing to ask for "milk of sulphur." The public seem, in fact, to be quite unable to adopt such changes in names, and pharmacists are consequently, and not unreasonably, requesting that their efforts to sell only the non-calcareous precipitated sulphur of the British Pharmacopœia, when asked for "milk of sulphur," should, in harmony with the history of the subject in this country, and past and present practice in other countries, be supported officially by *lac sulphuris* and "milk of sulphur" being inserted as synonyms of *sulphur præcipitatum* in the next edition of the British Pharmacopœia. See *Pharmaceutical Journal* [3], vol. xx., p. 573, and vol. xxi., pp. 428 and 592.

The Solvent Action of Alcohol of Various Degrees of Strength upon Certain Drugs.

MESSRS. E. H. FARR and R. WRIGHT read a paper at the recent British Pharmaceutical Conference on the above subject, giving the result of their experiments, in continuation of last year's report. In the present paper the results obtained with *Hyoscyamus* are reported.

The objects aimed at have been:

1. To ascertain what menstruum is best adapted for the exhaustion of the drug.
2. To find the average contents in alkaloid and extractive of tinctures prepared with alcoholic menstrua of different strengths.
3. To test the comparative value of alternative processes for the preparation of tinctures.

The authors employed menstrua of 80, 70, 60, 50, and 40 per cent strength (by volume), and find, as the result of experiments made with twelve specimens of henbane leaves and one of root, that the alkaloid may be completely extracted by any of these menstrua.

The process employed for the estimation of the alkaloid in the tinctures consisted in evaporating 100 C.c. of the sample. with the addition of water until all alcohol was driven off, allowing the residual liquor to cool, acidifying with dilute sulphuric acid, removing all coloring matter by agitation with successive portions of chloroform until the latter came away colorless, washing out traces of alkaloid from the mixed chloroformic washings with acidulated waters, and adding the latter to the original alkaloidal solution. From this the alkaloid was extracted by treating with ammonia in excess, and shaking out the liberated alkaloid with two or three doses of chloroform. The mixed chloroformic alkaloidal solutions were then shaken with a little slightly ammoniated water, and after separation the chloroform layer was drawn off and evaporated, the residue being heated at 100° until the weight was constant.

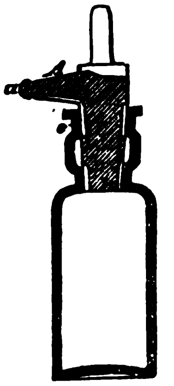
The percentage amount of extractive was ascertained [illegible] evaporating 10 C.c. of the sample, drying the residue [illegible] 100°, and multiplying the amount by 10.

The paper was illustrated by three tables, the first giv[illegible] the percentage yield of alkaloid and extract dried at [illegible] the second showing the results obtained on mixing the tinctures (1) with water, and (2) with 90 per cent of alcohol (as indicating the presence or absence of fatty, waxy, resinous, and mucilaginous substances), and the third giving the results of experiments with the assay process.

The authors recommend the use of a 50-per-cent menstruum for the preparation of this tincture, and also advocate its standardization, the standard to be fixed at 0.01 per cent. The results were also given of experiments upon the best process to follow in making the tincture.

Four processes were tried, namely, seven days' maceration, double maceration, maceration and percolation, and continuous percolation. From the results given it appears that either of these processes is quite effectual in removing the whole of the alkaloid present in the leaves, while the percentage of dry extract varies somewhat considerably, the tinctures prepared by continuous percolation showing the highest yield.—After *Chem. and Drugg.*

DROP COUNTER.



THE accompanying illustration represents a new drop-counting bottle patented by J. Traube and A. Kattendidt (Germ. Pat. No. 56,919). The object is to cause the delivered drops to be always of the same size, no matter at what angle the bottle is held. To accomplish this the stopper is provided with a conical extension A, the end of which (*a*) is globular.—*Chem. Zeit.*

The Action of Wine upon Pepsin and Digestion.

WITHOUT dwelling upon the known action of alcohol, which has been well studied by Petit, and upon that of cream of tartar, the novel results arrived at by L. Hugouneng, in some recent researches (*Bull. Soc. Chim.*), are the following: 1. All wines, without exception, interfere with the action of pepsin, those richest in alcohol, cream of tart[illegible] coloring matter being most injurious, as it was to be use[illegible]ee. 2. Among the elements of natural wine. *Dilute*[illegible] matters act in concert with the alcohol and [illegible] of tartar to retard or arrest pepsic indigestion. 3. The acidity of normal wines is unable to excite the action of pepsin; in most cases it does not appear to assist. 4. Among the coloring matters introduced fraudulently into wines, methylene blue, azoflavine, solid blue, and especially magenta, interfere with pepsic digestion. The vegetable colors, black mallows, elderberries, and maki, like œnoline, exert an injurious action. 5. Plastering, by removing a part of the cream of tartar, eliminates an element of natural wines which retards the action of pepsin *in vitro*. Digestion is more rapid in presence of plastered wines than of natural wines. but the advantage which plastered wines have in this respect does not conceal their other disadvantages.

Fractional Crystallization of Quinine Sulphate.

A QUININE sulphate containing 6 per cent of foreign sulphate, when saturated at 100°, gives scarcely any deposit on cooling to 90°; from 90° to 50° the crystals have nearly a constant composition and contain not more than 1 to 2 per cent of impurity. Below 50° (and principally about 40°) more than the average amount of cinchonidine appears in the deposit. Between 35° and 25° usually, an abundant crystallization takes place, dependent on the proportion of cinchonidine and cinchonine present with quinine; this arises from the separation in a solid form of molecular compounds, and sufficient time is required before filtering off the liquid which is to be employed for the ammonia assay of the quinine sulphate. The results with various samples of sulphate show that the amount of aqueous ammonia required in the ammonia test diminishes with the temperature of filtration. An inspection of the curve plotted from these results shows that the temperature 15°, selected for filtration in the ammonia assay, has been well chosen.—L. PRUNIER in *Journ. de Pharm.* and *Journ. Chem. Soc.*

Castor Oil and Malt Extract.

CASTOR oil has for many years been regarded as one of the most generally useful aperients, but its employment has been considerably limited on account of its nauseous flavor. As many experiments have been made with a view of obviating this difficulty, the idea suggested itself of employing extract of malt as a vehicle, since the extract has been found so useful in masking the taste of cod-liver oil and other medicines of a nauseating character which are objected to by so many people.

The specimens presented are composed of nearly equal quantities of oil and extract of malt. They have been submitted to many therapeutists, and a general opinion has been expressed that the nauseous flavor of the oil is very little or not at all perceptible, and that no disagreeable taste is left in the mouth after the administration.

One advantage in the employment of extract of malt for disguising the flavor of castor oil is that the extract is itself a mild aperient in large doses and may be found a valuable aid in connection with the castor oil. The rationale is readily seen. The gum in the Mistura olei ricini tends to cause early decomposition of the preparation, whereas the pseudo-solution of castor oil in malt extract appears to keep perfectly for an indefinite period. It will be observed that the mixture is light and clear. I am not yet able to say whether the oil is actually dissolved in the extract; I hesitate to call it a solution, but the chief evidence in favor is that, as I show it, it is translucent, and upon adding to water the mixture becomes turbid and forms an emulsion. The combination is, I believe, well adapted for giving to children and fastidious persons, and thus assists in making the oil available to patients hitherto unable to take it.

For preparing the mixture the mortar should be first warmed and the extract of malt triturated in it until it becomes somewhat liquefied. The castor oil should then be added gradually during continuous trituration.—S. M. BURROUGHS in paper read before British Pharmaceutical Conference; after *Chem. and Drugg.*

Preparation of Catechu in British [illegible].

THE following description of the ma[illegible]r præcuring catechu in British Burma, as furnished [illegible]arter, Deputy Conservator of Forests in Tharawaddy, is given in the "Dictionary of Economic Products of India" (i., 33):

"For the working of one caldron three men are necessary; but if a large number of caldrons are employed there is some saving of labor. Of the three men, one man is employed in felling the trees and dragging them, by means of cattle, to the cutch-boiling place. The second clears the logs of sapwood and cuts the heartwood into chips. The third attends to the fires and the boiling process. The chips are put into earthen pots, which are filled with as many chips as they will contain, then water is poured in until the pots are nearly full. The pots (which have the capacity of about 3 gallons) are then placed on the fire and boiled for about twelve hours, by which time the water is reduced to about one-half the original quantity. For 1 caldron 20 to 25 of these earthen pots are employed. The caldron is nearly filled from these pots; and when the extract in the caldron is reduced to about one-half, the caldron is again filled from the pots, and this is repeated until the pots are emptied. The boiling process is generally accelerated by the employment of a large earthen pot, which is set up near the caldron, and is filled at the same time as the caldron, and kept boiling, the extract from the small pots being constantly added as that in the larger pot is reduced. The caldron is then filled from the large pot instead of from the small ones. The Burmese call this large pot the Ye-ni-o, or red water pot. The extract from the pots having all found its way into the caldron, the boiling is continued, and the liquid is stirred until it attains the consistence of syrup and fills only about one-fifth of the caldron. The caldron is then removed from the fire and stirred with a piece of wood, shaped like a paddle, for four hours or more, by which time the mass has attained a greater consistence and is cool enough to be handled. It is then placed in a mould, like a brick mould, and is left to cool. This generally happens at night, and by next morning the result is a brick-like mass of cutch weighing 36 to 44 pounds.

"The stirring business, which takes place after the caldron is removed from the fire, is more of a beating-up, and I have never been able to ascertain what the object or effect of the process is. Cooks differ, too, in the amount of beating-up that is desirable, some being satisfied with half an hour's application." The outturn of 1 caldron of 12 gallons in twenty four hours, when properly worked, is fairly constant at the figure given by Mr. Carter.

Assay of Tea.

P. DVORKOVITCH estimates the amount of theine as follows (*Journ. Anal. and Appl. Chem.*, v., 345, and *The Analyst*): Ten Gm. of tea are carefully ground and 200 C.c. boiling water are poured over it. Five minutes later the infusion is decanted. This operation is repeated three times. The tea is then boiled twice with 200 C.c. water each time so that the water is not colored, or but slightly so, The extract thus obtained is diluted to 1 liter. A portion of this extract is washed with petroleum ether three times, in order to remove the oil and the brown substance found in tea, to which Mulder has already called attention. Then 600 C.c. of this aqueous infusion, corresponding to 6 Gm. tea, are taken, washed with petroleum ether, 100 C.c. of a caustic baryta solution, containing 4 Gm. in 100 C.c., are added to it, well shaken, and filtered immediately from the precipitate obtained; 583 Gm. of the filtrate, corresponding to 5 Gm. of tea, are then mixed with 100 C.c. of 20-per-cent salt solution, and the mixture shaken with chloroform three times, about 400 Gm. chloroform being used in all. The solvent is then removed by distillation, and the residue of theine dried at 100° C. Absolutely white theine is obtained in beautiful needle-shaped crystals.

The washing with petroleum ether is necessary, first, for the removal of the ethereal oil, and, next, for that of the brown substance alluded to. One and the same tea, washed and not washed with petroleum ether, showed a difference of 0.6 per cent in its contents of theine. This method gives higher results than those of Peligot, Mulder, or J. Bell. All methods based on Mulder's principle, viz., on the boiling of the tea with magnesia or lime, give results which are low, on account of the partial destruction of the theine with evolution of ammonia.

The preliminary fermentation, to which all black teas are subjected, destroys a varying proportion of the tannin. The quality of the tea, to a very great extent, depends upon the method of fermentation, the astringency not only being lessened thereby, but the aroma being developed. The author worked out a method applicable to the determination of the tannin and to its products of fermentation, based upon the Loewenthal principle. A solution of tea, 10 Gm. to the liter, is made, precisely as above described, 40 C.c. being diluted with 500 C.c. of water, and titrated with permanganate, with indigo-carmine as indicator; 80 C.c. of the tea solution are then mixed with 20 C.c. of caustic baryta containing 4 Gm. In 100 C.c. the precipitate is filtered off and 50 C.c. titrated with permanganate. The quantity of permanganate thus expended indicates the quantity of the products of the decomposition of the tannin; that is to say, the degree of fermentation to which the leaf was subjected. The longer the fermentation lasted the more of these products. The percentages both of tannin and the products of fermentation are calculated from the oxalic acid standard of the permanganate solution, 63 Gm. of oxalic acid corresponding, according to the author, to 31.3 Gm. of tannin, and not to 41.2 as found by Neubauer.

Twenty-nine samples of tea were examined. The best qualities contained the largest amounts of theine. This was manifested more strongly when the ratio of theine to the total amount of tannin and products of fermentation was calculated. The theine varied from 2.14 in the cheapest to 3.21 in the best tea; the percentage of theine to total tannin, from 16.0 to 24.52.

It need hardly be added that these deductions are in direct contradiction with those of many other observers.

Methods for Determining Phosphoric Acid and Moisture in Crude Natural Products.

THE methods below given are those which were adopted at the meeting of the Official Agricultural Chemists in 1890. We have received inquiries from a number of subscribers and correspondents during the past few months regarding several of the details. The latter can, however, only be fully appreciated if the whole process is given.

1. *Preparation of Sample.*--The sample should be well intermixed and properly prepared, and passed through a sieve having circular perforations 1/25 of an inch in diameter, so that separate portions shall accurately represent the substance under examination without loss or gain of moisture.

2. *Determination of Moisture.*—(*a*) In potash salts, nitrate of soda, and sulphate of ammonia, heat 1 to 5 Gm. at 130° C. till the weight is constant, and reckon water from the loss.

(*b*) In all other fertilizers heat 2 Gm., or, if the sample is too coarse to secure uniform lots of 2 Gm. each, 5 Gm., for five hours at 100° C. in a steam bath.

3. *Water-soluble Phosphoric Acid.*—Weigh out 2 Gm. in a small beaker, wash by decantation four or five times with not more than from 10 to 15 C.c. of water, then rub it up in the beaker with a rubber-tipped pestle to a homogeneous paste, and then wash four or five times by decantation with from 10 to 15 C.c. of water. Transfer the residue to a 9 Cm. No. 589 Schleicher & Schüll filter, and wash with water until the filtrate measures not less than 250 C.c. Mix the washings. Take an aliquot (corresponding to ½ Gm.) and determine phosphoric acid, as under total phosphoric acid.

4. *Citrate-insoluble Phosphoric Acid.*—Wash the residue of the treatment with water into a 200-C.c. flask with 100 C.c. of strictly neutral ammonium citrate solution of 1.09 density, prepared as hereafter directed. Cork the flask securely and place it in a water bath, the water of which stands at 65° C. (The water bath should be of such a size that the introduction of the cold flask or flasks shall not cause a reduction of the temperature of the bath more than 2° C.) Raising the temperature as rapidly as practicable to 65° C., which is subsequently maintained, digest for thirty minutes from the instant of insertion, shaking every five minutes, filter the warm solution quickly (best with filter pump), and wash with water of about the temperature of 65°. Transfer the filter and its contents to a capsule, ignite until the organic matter is destroyed, treat with 10 to 15 C.c. of concentrated hydrochloric or nitric acid, digest over a low flame until the phosphate is dissolved, dilute to 200 C.c., mix, pass through a dry filter, take an aliquot, and determine phosphoric acid as under total.

In case a determination of citrate-insoluble phosphoric acid is required in non-acidulated goods it is to be made by treating 2 Gm. of the phosphate material, without previous washing with water, precisely in the way above described, except that in case the substance contains much animal matter (bone, fish, etc.) the residue insoluble in ammonium citrate is to be treated by one of the processes described below.

5. *Total Phosphoric Acid.*—Weigh 2 Gm. and treat by one of the following methods: (1) Evaporation with 5 C.c. magnesium nitrate, ignition, and solution in acid. This method is to be used in case of all fertilizers containing cottonseed meal. (2) Solution in 30 C.c. concentrated nitric acid with a small quantity of hydrochloric acid. (3) Add 30 C.c. concentrated hydrochloric acid, heat, and add cautiously, in small quantities at a time, about 0.5 Gm. of finely pulverized potassium chlorate.

Boil gently until all phosphates are dissolved and all organic matter destroyed; dilute to 200 C.c., mix, and pass through a dry filter; take 50 C.c. of filtrate, neutralize with ammonia (in case hydrochloric acid has been used as a solvent, add about 15 Gm. dry ammonium nitrate or its equivalent). To the hot solutions for every decigramme of P_2O_5 that is present add 50 C.c. of molybdic solution. (Test the filtrate by renewed digestion and addition of more molybdic solution.) Dissolve the precipitate on the filter with ammonia and hot water, and wash into a beaker to a bulk of not more than 100 C.c. Nearly neutralize with hydrochloric acid, cool, and add magnesia mixture from a burette; add slowly (1 drop per second), stirring vigorously. After fifteen minutes add 30 C.c. of ammonia solution of density 0.95. Let stand several hours (two hours is usually enough). Filter, wash with dilute ammonia, ignite intensely for ten minutes, and weigh.

6. *Citrate-soluble Phosphoric Acid.*—The sum of the water-soluble and citrate-insoluble subtracted from the total gives the citrate-soluble.

PREPARATION OF REAGENTS.

1. *To Prepare Ammonium Citrate Solution.*—Dissolve 370 Gm. of commercial citric acid in 1,500 C.c. of water, nearly neutralize with crushed commercial carbonate of ammonia, heat to expel the carbonic acid, cool, add ammonia until exactly neutral (testing by saturated alcoholic solution of coralline), and bring to volume of 2 liters. Test the specific gravity, which should be 1.09 at 20° C., before using.

2. *To Prepare Molybdic Solution.*—Dissolve 100 Gm. of molybdic acid in 400 Gm. or 417 C.c. of ammonia of specific gravity 0.96, and pour the solution thus obtained into 1,500 Gm. or 1,250 C.c. of nitric acid of specific gravity 1.20. Keep the mixture in a warm place for several days, or until a portion heated to 40° C. deposits no yellow precipitate of ammonium phospho-molybdate. Decant the solution from any sediment, and preserve in glass-stoppered vessels.

3. *To Prepare Ammonium Nitrate Solution.*—Dissolve 200 Gm. of commercial ammonium nitrate in water, and bring to a volume of 2 liters.

4. *To Prepare Magnesia Mixture.*—Dissolve 22 Gm. of recently ignited calcined magnesia in dilute hydrochloric acid, avoiding excess of the latter. Add a little calcined magnesia in excess, and boil a few minutes to precipitate iron, alumina, and phosphoric acid; filter; add 280 Gm. of ammonium chloride, 700 C.c. of ammonia of specific gravity 0.96, and water enough to make the volume of 2 liters.

Instead of the solution of 22 Gm. of calcined magnesia 110 Gm. of crystallized magnesium chloride ($MgCl_2 + 6H_2O$) may be used.

5. *Dilute Ammonia for Washing.*—One volume ammonia of specific gravity 0.96 mixed with 3 volumes of water, or usually 1 volume of concentrated ammonia with 6 volumes of water.

6. *Nitrate of Magnesium.*—Dissolve 320 Gm. of calcined magnesia in nitric acid, avoiding an excess of the latter; then add a little calcined magnesia in excess, boil, filter from excess of magnesia, ferric oxide, etc., and bring to volume of 2 liters.

INFORMATION WANTED.

No. 2,543.—**Keeping Lime Juice** (SUBSCRIBER, Halifax, N. S.). What is the best method for keeping lime juice, and, also, what is the best method for filtering it?

No. 2,544.—**Storer's Dictionary of Solubilities** (M. A. M.). Who is to be the publisher of this book, and who is doing the work of revision?

No. 2,545.—**Recognition of License** (B., Conn.). Would a license (by examination) issued in Connecticut be recognized in Westchester Co., N. Y.?

No. 2,546.—**Uses of Mercury** (J. K. W.). 1. Wanted, best method of putting mercury on tinfoil or any tinned article. 2. What will dissolve mercury, and, if dissolved, will it answer for same purposes?

No. 2,547.—**Indorsed Diploma.** In what State can a Canadian registered pharmacist have his diploma indorsed, and what rules regulate druggists' liquor license in such State?

American Druggist

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EDITORIAL.

WHEN nostrum advertisers can secure the publication, as an editorial article, of such a piece of misrepresentation as the following extract from a leading New York daily newspaper, it is hardly worth the trouble to strive to enlist their support in restricting the sale of their goods to pharmacies, as it is quite apparent that the "muslin" drug store, which has no goods of its own manufacture for sale, is the retailer they are bidding for.

The publication of such a screed would also appear to indicate that the growth of a practice among pharmacists of making and selling their own goods, for their own benefit, has increased to such a degree that the maker of secret preparations finds his own business suffer by the competition, and *squeals*. Assuming this to be the case, the outlook for the retailing pharmacist is encouraging, if he continues to fight it out on that line.

One suggestion we have to offer: it is that the retail pharmacist do some advertising himself in his local paper. Aside from the direct benefit which will result, it will also render the proprietor somewhat more inclined to consider whether he can afford to imperil his income from this source by the publication of slanderous and misleading statements regarding pharmacists.

"It's a poor rule which will not work both ways," and if advertising in public prints makes such a model of virtue and commercial honesty out of the nostrum maker, and promotes the sale of his trash, it will do something for the man who has good honest goods for sale at reasonable prices and at a fair margin of profit.

"THE DRUG SWINDLE."

"Some of our Western contemporaries are waging meritorious warfare on what they aptly describe as 'the substitute drug swindle'—that is, the sale by some retail dealers of an article prepared in close imitation of some well-known proprietary medicine in place of the genuine article. The extent to which this fraud is carried on is undoubtedly very great, quite as great in the East as in the West. There ought to be a way of reaching it by law. Perhaps there is; but the law may be so easily evaded that probably no force can be practically applied in restraint of the fraud so potent as public opinion. Whatever is to be said against the practice, all too general in America, of tinkering at one's system with drugs whose qualities and functions are not known and for complaints not understood, and however much patent medicines have tended to increase this admitted evil, the fact remains that there are many such medicines with reputations established by long and extensive use; and the character of their manufacturers is, to some degree, a guarantee that they possess certain virtues. Extensive advertising has rendered the public in every country village familiar with their nature, with the ingredients of which they are claimed to be composed, with the diseases they are intended to subdue, with the results their use is alleged to have produced, and with the appearance of packages in which they are placed upon the market. It is a common trick, after such medicines have become known, and after a demand for them has been created, for unscrupulous persons to devise inferior substitutes, meanly disguised in name and appearance, and, by profitable arrangements with some retail druggists, to reap the advantage of the genuine article's reputation. The druggist of whom a particular sarsaparilla or liver pill is asked doesn't happen to have that potion in stock, but, instead, has another, claimed, perhaps, to be his 'own make,' or at least to be well known to him, which he is always prepared to recommend as cheaper than the article demanded, and fully as good.

"In this way a vast number of dangerous drugs are foisted upon the public in place of those which, however undesirable for use without a physician's prescription, are at least reputable and in real demand. So far has this substitution gone that the market for certain of the most favored proprietary medicines—a market created by large expenditure and tested service—is occupied now by spurious preparations that no reputable druggist ought to have upon his shelves. The chief sinner in this business, we regret to say, is to be found among the retail druggists. Not infrequently he makes himself a knowing partner in the fraud, permitting his name to be printed on the bottles in which the substitute is supplied, or even engaging directly in its manufacture. This is altogether dishonest. Those who buy patent medicines need to be warned against allowing themselves to be cheated. They take great risks whenever they permit a salesman to persuade them to buy any drug except the one they know and want. It is little enough that science, in its highest exemplification, understands about the human system and the treatment of diseases; and people who undertake to do their own doctoring should at least be sure that they are obtaining what they intend to obtain, and that they are not taking a cheap toadstool for a mushroom."

THERE is another cloud on the horizon which is growing rapidly in size and importance, and which we have already remarked upon other occasions. That is the matter of dispensing by physicians. Do not allow the dust which arises in this combat over "patents" to obscure your observation in that direction. A few years since the practice had almost ceased, and even in country neighborhoods the doctor wrote prescriptions when he could thus avoid dispensing. At the present time the tendency appears to be in the opposite direction in cities, and there are now many in every town of any magnitude who only write prescriptions for things which they cannot readily dispense. So far as the retailing pharmacist is concerned in this, improvements in pharmaceutical preparations of late years have, to a considerable degree, contributed to his disadvantage, and the adoption of modern forms for many preparations favors their manufacture on a large scale and their being dispensed by doctors without the aid of the retailing pharmacist in either their manufacture or sale. Price lists of so-called "office supplies" now reach every physician, and travelling salesmen to promote the business of furnishing them are not wanting. This is a perfectly legitimate development of the drug trade, and no more to be avoided or prevented than the diurnal revolution of the earth, and the thing for the retailing pharmacist to do is to secure for himself, while he yet may, as large a portion of this business as he can.

We learn through Gehe & Co.'s semi-annual trade report (see this number, page 296) that the Javanese cinchona planters intend to erect a quinine factory in the western part of Java, and that they "expect to find a market for their product in San Francisco." We fear that not only the interested parties in Java but also the publisher of the report labor under the mistaken notion that San Francisco is willing to receive and become the distributing point for a cheap grade of quinine. For it is hardly to be supposed that the product of the proposed factory will equal that which is turned out by the well-equipped and long-established quinine factories of Europe and of this country. Of course it is not impossible to manufacture sulphate of quinine of pharmacopœial purity in Java. But experience elsewhere in tropical countries has shown that this is a difficult matter. It is not only difficult, however, but naturally distasteful to those who are financially interested in it, because the price of a pure quinine would have to cover all the by-products, which are practically unsalable in such distant countries. For this reason we are justified in doubting whether the product proposed to be put on the San Francisco market will comply with the requirements of the United States Pharmacopœia, though these are liberal enough, at least at present. If the Javanese planters suppose that the California market could be used as dumping ground for a cheap quinine or a cheap "febrifuge," they labor under a great mistake. It is better to give them fair notice now than to allow them to continue in their mistaken notion—if they have labored under it. If not, no harm is done by our warning. Our object is to point out, with as much emphasis as possible, that this country has for many years past ceased to be a dumping ground for cheap trash not wanted elsewhere, particularly in the line of drugs and chemicals.

From the number of the *Chemist and Druggist* of September 5th we learn that the principal planters' association of Java has just published a most valuable return of the prospective production of quinine bark on the island for the next two seasons. At the meeting of the association at which it was made public, a resolution was also adopted declaring the direct sales of bark by one or two plantations to certain European quinine makers to be opposed to the interests of the planting community. What the Java planters aim at, and what they may possibly accomplish with a good man at their head and effective Government assistance, is shown in a recent declaration of one of their number. "Even if we do not get our factory here," said that authority, "we shall knock the European quinine speculators on the head. In that case we shall form a syndicate, which will regulate the whole of the bark exports from this island. Bark will only be sold to the European quinine manufacturers on condition that they shall turn over all the quinine sulphate prepared from it to a European syndicate, which will take care of the sale of quinine. The by-products the quinine manufacturers may sell without interference. The quinine syndicate will have an agent in every country of the world. That agent will in turn control the provincial agents, who, where the law of the country allows it, will sell quinine and quinine preparations of every description directly to the public, and, where that is not permitted, will use retailers as middlemen. The Brunswick factory, the arch-enemy, will be altogether excluded from dealing with the syndicate, and the other works are to be expressly prohibited from selling any surplus bark to this concern. The profits will be divided among the planters in ratio of the quinine value of their bark."

The scheme seems a somewhat fantastic one, and if it is attempted to put it into execution it is sure to meet with a determined opposition from many quarters. But as the Java planters now control the bulk of the rich manufacturing barks, and some of their Indian and South American colleagues will no doubt be anxious to cooperate in the scheme if fair terms are offered to them, it would be rash to prophesy its entire impracticability.

In Gehe & Co.'s report above alluded to we also find a notice regarding American bromide of potassium which seems to require some comment. Owing to the recent break of the combination between the American and German bromine manufacturers, American bromine has been thrown upon the European market in considerable quantities. And the report further states that offers of bromide of potassium and of other bromides had been received in Germany from the United States at prices lower than those asked for the home products, in which connection, however, the fact is to be considered that the American product does not comply with the requirements of the German Pharmacopœia, owing to its high percentage of chloride (5 to 6 per cent).

We are quite ready to acknowledge that the American bromide of potassium of the present market generally contains more chloride than the recent new edition of the German Pharmacopœia admits. The limit is about 1.35 per cent. The United States Pharmacopœia (issued in 1882, nine years ago) made the limit 3 per cent; in reality it was about 3.34 per cent. The preceding German Pharmacopœia had put it at about 2 per cent. The fact is that the conditions under which bromine is obtained are different in the two countries, it being comparatively more easy to remove the chlorine from the crude German product than from the American. However, the manufacture of the latter has been so improved that it is now perfectly easy to produce a salt with only 2 per cent of chloride without increasing its cost. We think it would be hypercritical to demand a still purer salt, at a higher price. There was a time, years ago, when American bromide of potassium contained 5 or 6 per cent of chloride. The market, so far as we know it, contains no such salt at the present time. And it is for the purpose of putting this statement on record that we have made comment on the quoted passage from Gehe's report.

If our manufacturers want to have their product admitted in Germany, they will have to devise means to reduce the percentage of chloride without materially affecting the cost of the product. Should they succeed in doing so, we will be the gainers. That they will increase the purity merely for the sake of reputation, or from sentiment, is too much to expect; the only inducement would be the expectation of balancing a slight increase in the cost of production by an increased sale of the manufactured product.

NEWS AND NOTES.

ENGLAND.

THE questions of substitution and cutting are almost perennial in the manner in which they so frequently come to the front. The somewhat mournful lucubrations of "Bubo" in a recent issue of the AMERICAN DRUGGIST, together with his eminently practical judgment on the subject, have been recently indorsed by an editorial in a trade paper here. So far we have not yet experienced the heavy thunder of the lay press on the enormity of inducing a customer to purchase your own article in preference to another. But it is stated that in America the vials of wrath have been outpoured from many an editor's sanctum at the growing practice, owing to the representations of proprietors that their advertisements must be curtailed.

I am not sure that we manage these things better, but at any rate we go about it differently. There are two methods by which offenders of the art and practice of substitution are treated—either by the prompt and decisive action of the law, or by convincing them that the policy pays best of supplying the article asked for. Messrs. Beecham, of pill fame, have adopted the former method by an ingenious detective arrangement in various towns. They ascertained that the greatest offenders were retailers who, being asked for two cents' worth of Beecham's pills, supplied some other maker's pills. They accordingly sent out spies, with the result that numerous injunctions were obtained, chiefly against small dealers, for this fraudulent substitution. In each case it was, of course, necessary to prove, by means of two or three witnesses, that Beecham's pills were particularly asked for. Besides the injunction a penalty of $25 has usually been enforced, so that probably much of the imposition has been stamped out. The other method is adopted by the proprietors of more recent candidates for public favor, such as Vinolia and its preparations, etc. In these cases, by extensive advertising, the owners have sought to impress chemists that they intend to create a sale for their articles, whilst the prices are such as to allow a good margin of profit, and special care is taken to prevent their being "cut." By these means they have succeeded in convincing many that the policy of always keeping their goods in stock and supplying them when wanted really pays the best.

The hardest part of this otherwise admirable method is to prevent a preparation which is daily growing in popular demand from being grievously "cut" by stores, etc., as directly this takes place it is looked on with disfavor by many chemists. Nor is this surprising when one has experienced the annoyance of respectable customers haggling over, say, two cents, the difference between the full price and the "stores," and which represents nearly all your profit.

As an instance I may mention that in an advertisement in the price list of the Sussex Drug Store Company a letter is given by the Liquor Carnis Company, according to which the drug stores agree to charge full prices for the Liquor carnis ; and yet in the price list itself the article is quoted four cents under full price.

A new and delicate reaction for tartaric acid has been published by E. Mohler. A solution of resorcin in strong sulphuric acid (about 1 per cent of resorcin is employed) is added to the suspected liquid and heated. If only a trace, such as $\frac{1}{100}$ Mgm., of the acid be present, a reddish violet coloration is produced. Neither citric, benzoic, succinic, nor malic acid reacts in this manner. Nitric and nitrous acids, also their salts, must be absent, as they yield a bluish color with the resorcin reagent. It has recently been recommended that the reverse method should be used to distinguish resorcin, but the principal objection is that the coloration is destroyed by dilution, whilst the charring of the tartaric acid is misleading.

From the first of the present month the methylated spirit, which is permitted to be retailed free of duty by the inland revenue, will contain 0.375 per cent of mineral naphtha in addition to the present proportion of 10 per cent of wood naphtha. The principal feature of the new addition is that it renders the commercial methylated spirit milky when mixed with water, otherwise the addition is too small to be noticeable. The old methylated spirit containing only wood naphtha is allowed to be used for commercial purposes, but is not to be sold to the public in that state.

The classical researches of Podwyssotzki on the constituents of podophyllum rhizome have just been supplemented by Kürsten (*Archiv. Pharm.*). The method of preparing podophyllotoxin was followed carefully, but the product obtained was not constant in composition. It is obtained by extracting the coarsely powdered rhizome with petroleum ether to eliminate fatty matter. The drug is air-dried and extracted with chloroform until a colorless liquid is obtained. Distilling off the chloroform leaves a resinous mass which, when dry, is extracted with benzin, filtered, and the filtrate allowed to stand for several days. Prismatic crystals are thus obtained, which may be further purified by washing with 50-per-cent alcohol, next with ether, and finally recrystallizing from boiling benzin. The product occurs in long prisms having a melting point of about 95° C. It is soluble in cold water about 1 in 720, slightly more soluble in hot, only slightly soluble in ether, but easily in boiling benzin, absolute alcohol, and acetone. With concentrated sulphuric acid the prisms give red coloration, gradually becoming violet. Other mineral acids produce the red color. When oxidized with permanganate in alkaline solution, podophyllic acid is obtained. This acid gives a characteristic precipitate with cupric acetate. On heating podophyllotoxin with aqueous ammonia, picropodophyllin is produced. It has a melting point of 227° C., and is less soluble in water and alcohol than podophyllotoxin.

London Market Report.

MINCING LANE, September 10th, 1891.

SALES generally during the last month have been very quiet and prices have shown considerable weakness. The various soda compounds are remarkably firm, and Syndicate prices alone rule, as there are few second-hand lots obtainable. Quinine is selling in parcels of 5,000 ounces at 19½ cents for Brunswick and Mannheim makes, and from the absence of any particular demand it may possibly go still lower. The recent revelations pointed to the actual cost price of quinine to the manufacturers, at the present price of bark, as about 9 cents, so that, unlikely as it seems, it would not be safe to consider the current value as bottom price. The bromine squabble is paralyzing the bromide makers here, who are unable to fill orders until something like a settled price is fixed upon. Opium is very quiet, reports indicating an extraordinary crop. The cinchona auctions here this week were very quiet, although the supply was limited and a fair amount withdrawn.

The following are current prices:

Acid, Carbolic	per lb.,	$0.14	Mercury, Calomel	per lb.,	$0.74
Citric	"	.38	Corrosive Subl.,	"	.58
Oxalic	"	.07	Precip. red	"	.80
Tartaric	"	.27	" white	"	.78
Bleaching p'wd'r	per cwt.,	2.06	Opium	per lb.,	1.92 to 2.16
Camphor, crude	per lb.,	.28	Oil, aniseed	"	1.5
Refined	"	.36	cassia	"	.78
Cream of Tartar,	"	.20	peppermint, H.G.,	per lb.,	3.18
Cinchona, Calisaya	"	.16	sassafras	"	.44
Copper Sulph.	per cwt.	3.3	Potash, cyanide	"	.58
Ergot, Spanish	per lb.,	.36	Soda, bicarb.	per cwt.,	1.74
Ipecacuanha	"	2.2	caustic	"	2.30
Jalap	"	.34	crystal	"	.84
Mercury	"	.52			

CHICAGO.

GEORGE SCHREINER purchased the pharmacy located at Lincoln and Ashland avenues formerly owned by C. W. Jacob.

MR. HIRSCH purchased the pharmacy at 303 Belmont avenue.

Druggist MEISSNER, of La Porte, Ind., secretary of the Indiana Pharmaceutical Association, visited Chicago recently.

A drug store is to be established in the edifice now in process of erection at the corner of State and Randolph streets, Chicago, and to be known as the Masonic Temple.

It is understood that another new down-town pharmacy is to be opened by C. L. **Feldkamp**.

F. M. **Goodman** succeeds Henry C. C. Maisch as professor of botany and materia medica at the Chicago College of Pharmacy.

Dr. Whelpley, of St. Louis, and R. J. **Brown**, of Leavenworth, Kansas, visited Chicago after the close of the meeting of the Illinois Pharmaceutical Association.

Victor Bardonski has moved his store from 615 to 638 Noble street.

William Lenz has opened a new store at 1997 38th street.

Walter F. **Meyer** has purchased the store at 360 Ogden avenue formerly owned by J. G. Woodfill.

B. M. **Norton** & Co. have purchased the pharmacy at 239 North State street.

J. J. **Pierson** has moved his store from 347 to 345 Fifth avenue.

Eugene von Hermann has purchased the store at 420 26th street, formerly owned by himself, from Arzt & Co.

Oscar Alex has moved his store from 51st and Loomis to 48th and Loomis streets.

Eugene Weber has purchased the store at 445 North Clark street, formerly owned by C. L. Feldkamp.

The sessions at the two colleges of pharmacy will soon open, the Illinois College about the 1st of October, the Chicago College the 8th of October. Professor C. Lewis Diehl, of Louisville, will deliver the opening address at the latter.

MISSOURI.

The summer season is over and the druggists of Missouri are well satisfied with the trade that they have enjoyed during the past few months. Crops of all kinds have been fair, so that the farmers are able to pay their bills and buy for cash. Such a condition of affairs always pleases tradesmen, and the druggists come in for their share of the prosperity. Taking all in all, Missouri is not a bad State for druggists; they do not flock in from neighboring States and increase the number and sharpen competition, but the trade seems to hold its own very well.

The Missouri State Pharmaceutical Law, which was originally enacted in 1880, has had a good effect upon the drug business in the State by steadily raising the standard of pharmacy. The law never has been, and is not at present, all that could be desired, but it is a great improvement over no law at all, and the average druggist is very well satisfied with it. Many of those who were opposed to a pharmacy law when it was advocated over ten years ago have entirely changed their minds and are now among the warmest advocates of the enactment.

This is the month for the fall festivities in St. Louis, Kansas City, and St. Joseph. St. Louis has long taken the lead in this respect. With her Exposition, Great Fair, Veiled Prophets Procession, and other attractions, St. Louis manages to attract several hundred thousand visitors to the city every fall. The druggists of the State take advantage of the reduced railroad rates and visit their wholesale house for the purpose of selecting goods. The wholesale druggists prepare for them by ordering in their travelling salesmen, who assist in waiting upon their customers and country visitors.

It is a question with some of the country druggists whether or not it pays to go to the city and order goods by sample in the wholesale house rather than give their bills to the travelling salesmen. They forget all about the question when the attractions of the fall festivities are brought to their notice, and flock to the city with their order books in their pockets. It has become such a habit with the druggists of Missouri that they look forward to the occasion from one year to another. Many of them are accompanied by their wives and children, who enjoy the festivities fully as much as the druggists themselves.

Holiday trade in small places is an annual event of great importance to some of the country druggists. Other druggists in small places refuse to handle holiday goods of any kind, claiming that it does not pay, on account of the loss occasioned by unsalable goods, which are either disposed of at a great sacrifice or held over until the following season. The success of the holiday trade seems to depend, to a great extent, upon the business ability of the druggist. It requires an unusual amount of business tact to buy a well-selected stock of holiday goods, and an equal amount of energy to dispose of them at an advantage. It is not likely that the druggists, as a class, will give up this trade, for new ones seem to take it up as rapidly as old ones discard the holiday business, so that, taking all in all, it holds its own.

The St. Louis College of Pharmacy opens October 12th, while the Kansas City College of Pharmacy commences its fall and winter course about the same date. With these two institutions in a flourishing condition, very few students leave the State to learn the drug business in institutions located elsewhere. Both colleges in Missouri are well prepared to give systematic and advantageous instruction. The St. Louis college is one of the oldest institutions of the kind in the West, and has a faculty whose members are known to the pharmaceutical profession throughout the world. The prospects are good for larger classes at these colleges than ever before.

Ever since the Richardson Drug Company lost their entire stock, three years ago, and went out of business in this city, there have been rumors of the formation of new wholesale drug houses. Up to within a few weeks the Moffitt-West Drug Company was the only one which had materialized. This one was organized a few months after the Richardson Drug Company's fire, and was composed, to a great extent, of former employees of the old company. Within the past few weeks an entirely new drug firm has been incorporated with a capital stock of $150,000; it will be known as the Daugherty-Crouch Drug Company. There are 1,500 shares of stock at a valuation of $100 each. Z. W. Pinker holds 500 shares as trustee and 335 shares in his own name; W. B. Fisse, trustee, holds 400 shares; F. L. Lampel, 125 shares; John Crouch, as trustee 60 shares, and 25 shares in his own name; D. P. Daugherty 10 shares, and as trustee 20 shares; W. Graham, 10 shares. The new firm has leased a large building on 7th street, south of Clark avenue, and expects to be ready for business by October 1st. More than a half-dozen of the members of the firm and employees of this new company resigned positions in the Moffitt-West Drug Company for their new situations. This has caused a general change all around, for a number of the employees of the Meyer Brothers Drug Company have gone to the Moffitt-West Drug Company, while men from the other wholesale houses have also changed around, so that it is difficult, when you meet a wholesale drug man on the street, to tell just where he does belong. However, it will not be long before things adjust themselves and all will be running along smoothly with the wholesale drug trade of St. Louis.

St. Louis drug clerks and druggists have by this time all returned from their summer vacations and settled down to business in earnest. The practice of taking vacations, among both druggists and drug clerks, increases each year, and more clerks and druggists than ever before left the city this year seeking recreation. It seems to have had a very good effect upon them, for every one you meet who has been away looks brighter and seems to be in better spirits on account of his rest. It is quite noticeable that the druggist who takes a vacation and extends the same courtesy to his clerks one year is sure to follow the same practice the next season, so that we can look forward to the time when every drug clerk and druggist will manage to get out of the city for at least a short time each summer.

MICHIGAN.

One of the clerks in Brown's Pharmacy has fallen from grace. He was fined $13 by the police justice for embezzlement, the amount of his theft being about $20.

Some Detroit druggists have put in a line of spectacles and eye-glasses made by a certain Eastern firm. The trade in them is not exactly rushing, but it is quite satisfactory, and, owing to the very liberal terms allowed, fairly profitable. Altogether it makes a welcome addition to the pharmacist's stock, and one which properly belongs to him as much as to the jewelry stores.

The well-known chemist, Mr. H. W. Snow, has returned from his summer outing in Utah.

McFarland's new pharmacy on Michigan avenue is very neat and attractive, and it is to be hoped he will experience a corresponding increase in his trade.

There is at present a vast amount of rot being circulated, not only in the secular but also in the pharmaceutical press throughout the country, on the subject of substitution. The American Druggist really seems to be about the only paper on either side which has been able to discuss the subject intelligently and without becoming unduly heated or exhibiting a great degree of mental strabismus. While it is quite proper that the druggist should consider himself a professional man, it is nevertheless true that so long as he keeps a store for the public sale of goods other than physicians' prescriptions, just so long must he be considered, in part at least, a tradesman; and just so long will his business be amenable to the same rules which govern other businesses. The sooner the druggist catches on to this fact the better. It requires a peculiar combination of professional skill with business tact to conduct a drug store successfully; but many druggists imagine the latter to be not only useless but degrading. There is no question but that some proprietary medicines are frauds and their proprietors swindlers; but when a customer calls for Lock's Lung Pills, and the druggist wraps up a box of Cock's Lung Pellets and hands it to him without comment, then there is likewise no question that that druggist is quite as much of a swindler as the patent-medicine man. But what has all this to do with the average retailer? There are tricksters in all trades, even the ministry has its rascals, and it is absurd to suppose that the drug trade is not furnished with its full quota. But there is not the slightest occasion for every druggist in the land to climb a tree and commence to howl. Why, to read the drug journals of the past month, one would gather the impression that, with the exception of the American Druggist and one or two other papers, the entire pharmaceutical press of the country was controlled and published in the interest of a certain manufacturing concern in Detroit. Indeed, it sometimes appears as if this whole agitation might be simply a shrewd scheme on the part of this concern to gain an immense amount of free advertising which, if paid for at regular rates, would cost nearly a million dollars. This is a favorite method of advertising with theatrical stars, who have alleged quarrels with their managers, the details of which are published broadcast and eagerly swallowed by the fond, sympathetic public. But whatever the result may be, the retail druggist is all right, and cannot but regard the struggle with satisfaction. Let the patents and the anti-patents, like the monkey and the parrot, fight it out among themselves to their hearts' content; but let the retailer beware of being made the catspaw of any class of proprietors, patent or not patent. And remember that the man who keeps furthest away from the fight is the least likely to get hit with a brick.

CANADA.

Reports from various parts of the Dominion represent trade as picking up. Collections are not much more easily made than they have been all summer, but paper is more readily accepted. As a man's capital in Canada is represented, in the majority of instances, by the talismanic combination of letters, I O U, this ready renewal of acceptances is productive of a greater feeling of security. Speaking of this promissory-note business some weeks ago, one of our "solid" men likened it to the fleas that vex mankind, having lesser fleas to bite them (not being a devotee to the Ars Poetica, I have preserved only the sense of the quotation). He is right, and one realizes it when a large firm gets in difficulties, and the smaller card houses come tumbling down in rapid succession. In point of fact, the system amounts to much the same thing that you have to so great an extent over there—a monopoly in a line of trade, with this exception, the employees, instead of all being gathered together under one roof, are scattered around the country.

This, as you are no doubt aware, is the beginning of the season for agricultural exhibitions, the harvest time of the Punch-and-Judy man, the pink lemonade and hokey-pokey, double-jointed-peanut man, the Circassian lady and the sword swallower, the five-legged calf and the man-headed cow. Now the horny-handed Hank dons his three-dollar-and-a-quarter serge suit and a fresh paper collar, and takes Mehitabel to see the prize cattle and the hand reared mangels. Now the young lady with a nickel's worth of tutti-frutti in her cheek presides at the piano in the main building, and while grinding out the "Mocking-Bird" with impromptu variations, makes eyes at the "gent" in the embroidered smoking cap with gold tassel who extols the virtues of "de-fines'-preparation-in-de-world-for-removin'-paint-oil-tar-grease-an'-other stains"; or the fly individual who, though apparently not a proselyte himself, endeavors, by paper fans and sundry allusions to the excellence of his wares, to convert the public to the use of his particular brand of toilet and laundry soaps. Now Messrs. Sharpe and Gullim have prepared monster dummy representations of their shoedressing and Spanish blacking, their metal polish and razor paste, which they have entered and advertise as a display of chemicals. Yes! we have with us the season when village sewing circles are broken up, when second cousins are estranged, when there is a general transfer of "accounts," all the result of an unwise awarding of the best prize for canned pears or wool mats to a worthy but unpopular villager.

I spent a few hours at the Industrial Exhibition in Toronto this week. As an advertising medium it is quite up to the exhibitions of former years, but for instruction or amusement (outside of its being an excellent place for the study of mankind in the concrete) I should prefer the primary classes of the kindergarten. There are several exhibits of interest to druggists there; but as this page is not devoted to advertisements, I am not at liberty to detail the merits or demerits of the respective displays. However, amongst others of note, I saw the rotund little figure of Mr. Beck presiding as guardian angel over the exhibit of Messrs. Whitall, Tatum & Co. The Pure Gold Manufacturing Company also show considerable ability to keep up with the procession by calling attention to their baking powders, extracts, and spices through the medium of a phonograph with a large trumpet attached. A patent medicine firm go them one better, and have an authentic testimonial at their booth in the shape of a man who was supposed to have been cured, after being given up by the physicians, through the agency of their remedies. This chap did himself a good turn in getting better just about the time he was taking these remedies, as he is acting as an itinerant advertisement for the company. I have seen him on several market days in his native town hawking his wares where farmers most do congregate. (By the way, the man is known as the Blanktown Miracle.) There are four or five other patent medicine and drug houses represented there by monster crystals and metallic trees under bell jars, and samples of crude drugs used in the preparation of their specialties. An electric belt is shown for which, judging by the pamphlets, are claimed almost all the powers ascribed by Lytton to his magic force, "vril." Take it altogether, perhaps it does some good, for the greater knowledge people have of what they lack the greater demand will there be for supplies.

I see that the public analyst has been after the Montreal druggists with a sharp stick for selling Spiritus ætheris nitrosi not up to the standard. One sample indeed yielded seven volumes of gas, but the majority of them ran low, while one gave up no gas at all. It is a pity something cannot be done to prevent the rapid elimination of gas from this spirit. In large establishments where there are lots of the spirit sold, they can manage to keep it at or near the standard, but where the suburban druggist only sells a pound or so a year he has no show at all.

While waiting for a brother pill man to come for a sail one day not long ago, a tiny girl came into the store and, standing on her tiptoes, dropped five cents on the counter, and asked for the worth of it in blue ointment, finishing up with the remark in all the *naïveté* of childhood, "Please, ma says it ain't for us."

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SOUTH AMERICAN ARROW POISONS.

It is well known that under the name curare, or woorari, quite a number of different crude extracts, prepared by the natives of tropical South America east of the Andes, reach us, some of them being found exceedingly active, usually containing an alkaloid, no doubt derived from one of the plants entering into their preparation; while others are practically inert, probably due to their having spoiled by long keeping. Some years ago the unfortunate French traveller Crévaux described the preparation of a very active kind of curare, having witnessed it among the natives of French Guiana (see NEW REMEDIES, 1881, page 1). Another account, by Paul Marcoy (in his "Travels in South America," 4to, London, 1875, ii., page 303, etc.), which has not found its way into professional journals, may prove of interest.

The poison made by the Yahuas is as active as that of the Ticunas, although in the markets of the Upper Amazon their selling price is different. Thus the poison of the Yahuas costs only 12 reals for a pot containing a pound, whilst that prepared by the Ticunas sells at 3 piastres. Some explain this difference of price between the two products by a difference in the time they keep; the poison prepared by the Yahuas, they say, scarcely retains its virtue to the end of a year, whilst that made by the Ticunas is as effective at the end of two years as at first. Among the riverside inhabitants of the Amazon, with whom the blowing-tube takes the place of a gun, these poisons, of which the *wourali* and *curare* are only counterfeits, replace advantageously the powder and lead of the European sportsman.

South American Indians hunting with the Blow-gun and Poisoned Arrows.

More than one traveller, whose names have escaped me, speak of the composition of this poison. In addition to their explanatory statements, they have informed us that the savages, instead of preparing it in their huts, go into the depths of the forest for that purpose, in order to guard the secret from the eyes of the curious. Not knowing what to think of this statement, I begged Father Rosas to use his influence with the Yahuas in order to arrive at an exact knowledge of the fact.

The Yahua to whom he addressed himself courteously offered him a small pot of his poisoned pomade, but refused to let him know of what drugs it was composed and how he prepared it. The monk tried to seduce him by the gift of a knife (*eustache*) with a handle of yellow wood, but the discretion of the savage was proof against such a trifle. He laughed in the monk's face and turned his back upon him.

A second individual showed himself more communicative, dazzled as he was by the offer of a table knife which the missionary had substituted for the clasp knife previously tendered. This fellow spoke of a shrub and a liana, but he refused to indicate their species or explain the manner of using them.

More than an hour was spent in negotiating this affair. In place of the single knife presented to him at first, the monk now offered him three. The temptation was too strong for the moral force of the savage. Two Yahuas, the father-in-law and son-in-law, succumbed at once, one promising to bring me a branch of the shrub in question, the other a stem of the liana. This was something, doubtless; but the nearer I drew to my end the more exacting I became. I requested them to let me have some flowers or fruits of these vegetables: they replied drily that it was not the season.

Although obedient to the periodical law of vegetation, the forests of South America are accustomed to the enjoyment of certain privileges unknown to those of Europe. Whilst the mass of vegetation flourishes and fructifies at a determined epoch, some individuals blossom and bear fruit before or after the season. It was upon these precocious or tardy vegetables that I calculated for the success of my negotiation. After a discussion which nded in my favor, the two Yahuas set out and did not return until the next day, when they told me they had travelled forty-five miles through the woods to find the flowers and fruits I required. One of them presented me with a slender branch of a shrub having oblongated leaves, opposed and veined like those of the Melastomaceæ. From the fork of one of the branches hung a cluster of fruit like that of the *ubilla*. Each fruit, of the size of a very small grape (*chasselas*), was formed of a ligneous shell, dehiscent and of the color of yellow ochre, with an exterior velvety coat, exposing to view when open four seeds or stones in their cells, almost like those of the raisin. The other Yahua brought me a stem of a flat liana, 2 Cm. in thickness and 20 broad, with a fine and whitish-colored bark which reminded me of the silver birch. This liana was destitute of leaves, but it bore below a fragment of ligneous tendril of the size of one's little finger, three great flowers of the same kind as the leguminous Papilionaceæ—a *Dolichos*, perhaps—the inferior alæ or carina of a pinky whiteness, the wings of a rosy lilac, and the standard a violet purple. I had now but one more wish to gratify—that of knowing how to make use of these treasures. This desire was such an enormity in the eyes of the Yahuas that they taxed my reverend friend to the amount of eight fish hooks before they consented to reveal the mysteries of their cuisine.

One of them fetched an earthen pot of a middle size, which to all appearance had never before been used, and filled it with water. The other heaped up around it a quantity of little branches, which he kindled with a little handful of a peculiar tinder.[*] This done, the first, who was the father-in-law and who alone meddled with the preparation of the poison, leaving his son-in-law to attend to the fire, threw into the water the leaves and the stem, cut into small bits, of a branch similar to that which had been brought to me, the fruit being useless to the operation. When the water commenced boiling it first turned yellow and soon afterwards the color of rust. When the boiling had been continued for two hours, the Yahua took the sediment of the leaves and the wood out of the pot, threw it aside, and scraped into the mixture the bark of the liana with violet flowers, including the inner membrane or liber. A brisk fire was kept up, and a thick scum formed again and again as often as it was removed by the operator with a wooden spatula with which he stirred the mixture.

When this part of the process was accomplished to his satisfaction, he took from a calabash three little packets made of the leaves of the American cane and tied with a thread of bark, undoing which he emptied the contents of each into the pot. One of these packets, he told us, contained the bruised and pulverized stings of a certain species of ray—the *dari-dari*—fished in the Iça; the second held an assortment of the glands and fangs of venomous serpents, dried and reduced to powder; the third some thousands of corpses of the *tasua-pira*, or fire-ant. On hearing this foreign name I did not feel the surprise that might have been expected. During my residence at Nauta I had made the acquaintance of the charming little monster, and the cramps and pains that had resulted from my indirect relations with him were fresh in my memory. It sufficed for that to have walked barefoot over the trunks of fallen trees at a place where the *tasua-pira* had passed, leaving behind it a caustic slime, the action of which upon the skin may be compared to that of cantharides pickled in sulphuric acid.

The poison, seasoned with various ingredients, was cooked for at least two hours longer, having previously been three hours over the fire. It now assumed the consistence and color of molasses, on perceiving which the Yahua lifted it quickly from the fire, and, without giving it time to cool, put over the mouth of the pot two sticks crosswise, on which he placed a leaf of heliconia and then covered it with earth.

The next day the pot was broken, and the poison, which had become hard, was turned out like a lump of black wax weighing about 4 pounds. To soften it for the purpose of dipping the arrows it is sufficient to bring it near the fire.

The active qualities of this poison are of short duration. After a year or eighteen months, instead of remaining black and unctuous, it becomes grayish and brittle, and is covered with a kind of mould, when it is only fit to be thrown away. The natives are able to tell at a glance, within a fortnight or so, how long previously a pot of the poison had been prepared, and even to name the tribe who had manufactured it. It is prepared in the forest because the necessary combustibles abound there, and the labor of carrying them home from a distance is thus avoided.

Artificial Camphor.

THE artificial production of ordinary camphor has long been accomplished, at least on a small scale, by means of oxidizing camphene or substances containing this, or allied terpenes.

Quite recently J. E. Marsh and J. A. Gardner have published new researches on terpenes (*Journ. Chem. Soc.*, vol. lix., p. 648) in which they announce a method of producing camphene on a large scale. The method is essentially that originally proposed by Wallach (heating 1 part of pinene hydrochloride—or turpentine hydrochloride—with an equal part of anhydrous sodium acetate and 2 parts of glacial acetic acid during three or four hours, then distilling with water). Instead of heating the mixture in glass tubes, the above-named chemists used a large copper autoclave, which is not attacked by the acetic acid. For heating the autoclave a bath of pitch was used, which can easily be heated to 250° C., the temperature required, without danger, smell, or inconvenience. The crude camphene obtained is separated from the other product (viz., acetate of borneol), and from unaltered hydrochloride of turpentine, partly by distillation with steam. On rectifying, it at once solidifies in the cold.

Riban states that when camphene is oxidized by potassium dichromate and sulphuric acid it yields camphor. Marsh and Gardner, however, are unable to confirm this. From 17 Gm. of camphene, boiled during eighteen hours with 57 Gm. of potassium dichromate, 70 Gm. of sulphuric acid, and 140 Gm. of water, they obtained 12 Gm. of a solid which certainly had the smell of camphor, but which proved, on distillation, to be unaltered camphene. Nitric acid was also found to be incapable of producing camphor from it.

Although the conversion of camphene into camphor has, so far, been impracticable on any but an experimental scale, an important step towards the manufacture of genuine camphor by synthesis has been made through the new process above described. It may not be long when we shall no longer be dependent upon Japan and China for our supplies of camphor.

Preparation of Oxygen Gas for Experimental Purposes.

G. KASSNER recommends to utilize the reaction between barium peroxide and potassium ferricyanide—whereby oxygen is liberated—in the following manner:

Keep ready prepared a "milk" of barium peroxide and water. This should be at least a few hours old, so that the peroxide may be converted entirely into a hydrate. When oxygen is wanted the ferricyanide is added, either in form of a concentrated solution or in form of small crystals. The former produces an instantaneous rush of oxygen; the latter (crystals) cause a more steady, uniform evolution of gas.—*Zeitsch. f. angew. Chem.*

Oxin.

THIS very suggestive name has been given in France to a new meat preparation obtained from lean beef, which is reduced to a fine pulp, then mixed with sugar, and subjected to constant agitation at a temperature of 40° C. The sugar is said to extract all the useful constituents of the beef. It is not stated whether the saccharine extract is separated from the fibrin or not.—After *Journ. de Méd.*

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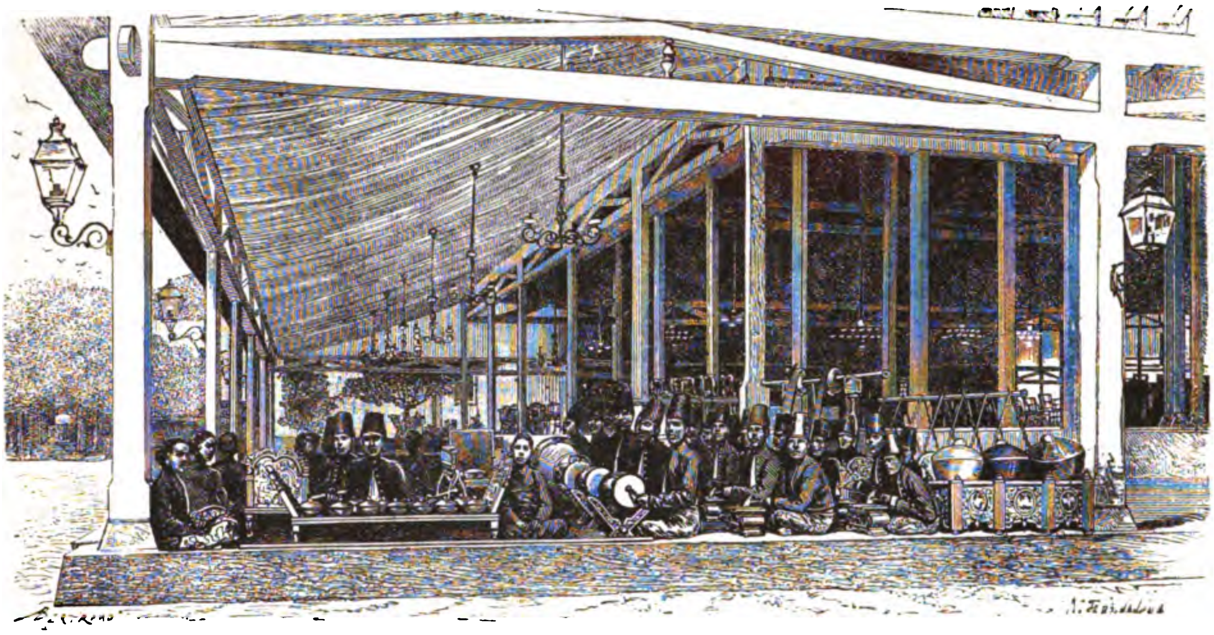
[*] Called in the country ants'-tinder—*yesca de hormigas*. It is a viscous substance, of a pale reddish color, secreted by a variety of these hymenoptera. They stick the branches of a tree together with it, at some yards above the ground, filling up the spaces, and forming the enormous pellet which constitutes their nest or ant-hill. This matter, almost as soon as it is produced in contact with the air, becomes dry, soft, spongy, and holds fire like true tinder.

JAVA AND THE JAVANESE.

(Continued from p. 294.)

SAMARANG has an approach from the sea like that of Batavia—the same low and marshy shore. Indeed, this is characteristic of the entire northerly coast. The southern coast, on the contrary, is mountainous, and the billows of the Indian Ocean break upon its beach. Less than Batavia in size and beauty, Samarang is nevertheless a very handsome city. Its long avenues are not so wide, but more shaded. Its vegetation is more bushy, but less elegant. We find at Samarang beautiful houses surrounded by gardens with an air less manorial. The business portion has, like Batavia, its Chinese quarter and European offices, and in its suburbs the Arab huts and Javanese campongs. The population is sensibly different, owing to the greater proportion of Arabs. The hotels are dear and always full. The environs are unhealthy and permeated with the bad odors from the marshes, which are inundated at each tide. The only product of this region is the bamboo.

Five hours by rail from Samarang is Soerakarta, and about a half-hour brings one to firmer ground, but so irregular that the outlook is restricted. The forest here contains the teak, a wood much esteemed in India and the tropics for its durability. These forests, however well cared for, disappear, it is said in consequence of some unknown disease. From Soerakarta may be seen the three large volcanic mountains which occupy nearly the centre of the island—Lawoe, Mérapi, and Merbabou. It occupies a slightly undulating plain covered with scattered villages, which are enshrouded in verdure. Gigantic bamboos, breadfruit trees, cacaos, banyans, figs, bananas everywhere, in countless numbers. The soil is terraced in such manner as to secure the use of every drop of water required for irrigation, which is brought from a distance through little canals. Rice is a predominant crop, after which come sugar-cane, tobacco, manioc, and indigo. In one spot the green rice is just emerging from the water which covers the ground, and in the adjoining field women are picking the ripe grain stem by stem. Further on inundated plots, looking like terraced lakes, discharge their water in innumerable cascades upon the lower levels. Multitudes of laborers enliven the fields and myriads pass by upon the roadway: cutters of cane, planters of rice, drivers of carts, black buffaloes, and blonde zebus, backed by the children who care for them; little girls in costume of Eve watching flocks of geese. The twenty leagues of the route form a continuous panorama.

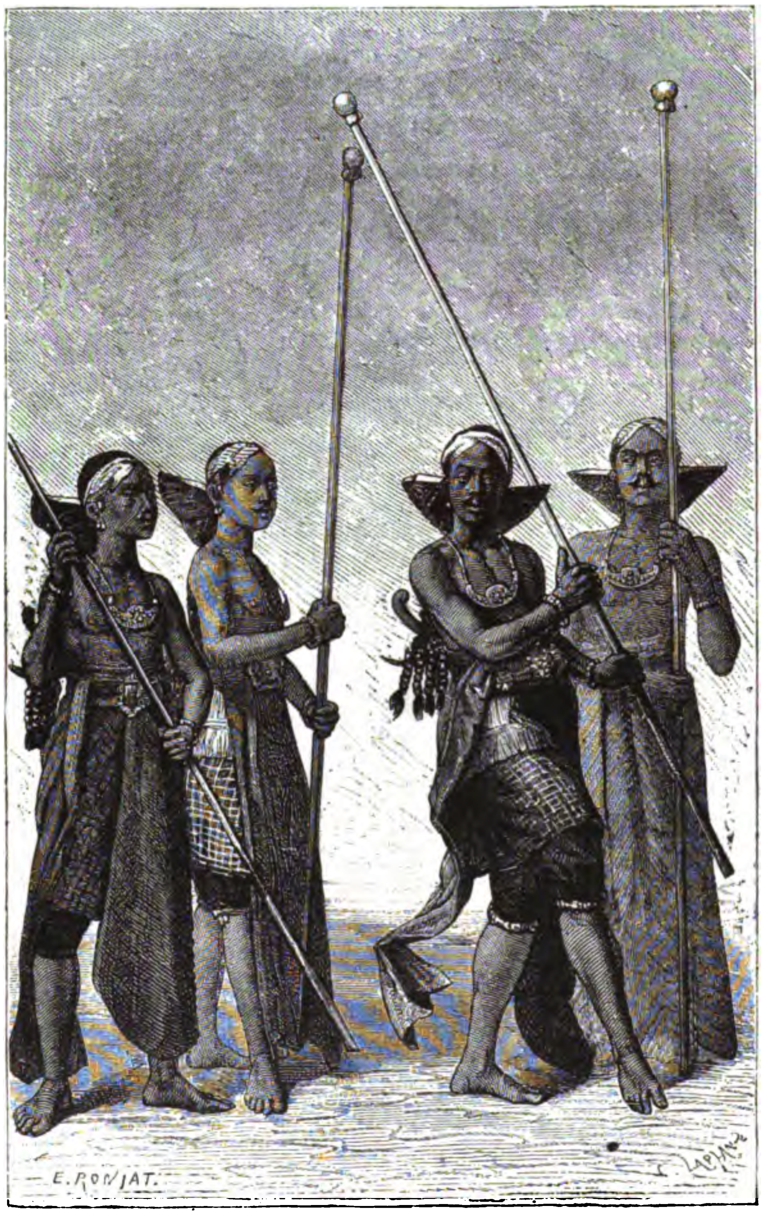


The Gamelan.

Solo, or Soerakarta, is the distinctively Javanese city. It is the holy city of the country, and the residence of the emperor and sultan descended from the emperors of Mataram. It is likewise the residence of the *Mangcounagoro*—the independent prince under the protection of Holland. The mercantile quarter resembles the corresponding portions of Batavia or Samarang; but if Batavia impresses one as being an immense park, and its surrounding villages as charming little groves, Soerakarta seems lost in the midst of a veritable forest. The streets are long avenues penetrating a tall forest of palms, breadfruit trees, and varingins, in which the houses disappear, and are separated from the roadway by canals of running water spanned by dilapidated bridges. The physiognomy of the streets is strange. Some are deserted, in others life is exuberant: venders, shaded by awnings or parasols, line the pathway and offer to the passer-by clothing, copper utensils, vegetables, fruits, beverages, and things unknown to strangers. Although the crowd be compact, it is respectful, and so indifferent of individuals that it is difficult to attract attention. Inquiry addressed to a woman regarding the wares exposed for sale elicited no reply, but only a lowering of her eyes, blushing cheeks, and an air of timidity. A surprising thing is the absence of other sound than the low murmur which belongs to a crowd in repose. There is no more sound of mirth among the children than of voice among adults. All go with bare feet and speak in low tones—they are a silent people.

It is upon the avenue of the palace, or Craton, otherwise known as the imperial residence, that one meets the official world and the dignitaries. Dressed in *sarrongs* more gay and jackets of finer cloth than those of the common people, the head surmounted by caps of glossy white, blue, or black silk shaped like a cake mould, the *kris* held by a rich girdle, these personages slowly and gravely advance, followed by attendants carrying a parasol which is green, yellow, or blue, according to rank, or of gold in the case of princes of the blood. Princes and high dignitaries, besides the obligatory accompaniment of parasols, have a more or less numerous escort of lances, and two pages or young girls carrying, one a copper spittoon, the other a gold box for betel. Upon the passage of a prince the Javanese bows low; for the emperor he prostrates himself in the dust. At night, owing to the absence of street lamps, the police regulations require every person to carry a light. The poor, in default of anything better for this purpose, carry a lighted torch of dry wood. Great fire-flies contribute to the evening illumination their erratic curves of light. One of the interesting sights of the town is the tiger house. It is constructed of strong planks with intervals between them too narrow to admit the passage of an arm or paw. The tigers are destined for combat with buffaloes during the grand fêtes, and they are nearly always vanquished; they are also reserved for the *rampoc*, of which mention will be made hereafter.

The palace of the *Mangcou-nagoro*, or prince, is a city within a city. Surrounded by walls, flanked by barracks, divided into courts and gardens, it contains a population of officials, servants, and clients. Unmarried women alone perform the interior service. The entrance is into a vast court, at the farther extremity of which are two immense sheds or pavilions which adjoin each other. The first, the *dalem*, serves as an audience hall, and is preceded by a peristyle bearing the coat of arms of the prince. It is supported by thirty-four wooden columns with rings of gold, and is furnished with objects of art, sofas, and tables. In the evening it is lighted by twenty-five large chandeliers of kerosene lamps and by torches. Its pavement is marble. It has no local characteristics: furniture, bronzes, divans are all of European origin, but, open upon all sides, it forms a hall most appropriate to the climate. The second pavilion, in the rear of the other, is smaller and more retired. Its ornamentation, resembling that of the other, is much richer. Smyrna carpets, Japanese bronzes, Chinese porcelains, divans, crystals, paintings, and statuary compose the furnishing. The extremity is occupied by three rooms enclosed by glass, those at the sides being most simple, but the central one, entirely gilt, is a *chef-d'œuvre* of Japanese cabinet work. Its interior is unapproachable, and serves for the daughters of the prince as a counterpart of an American 'bridal chamber" after their marriage. The remainder of the palace is composed of courts surrounded by galleries and chambers for the lodgment of the family and domestics, but its furnishing partakes too much of the character of European to be especially interesting. A notable feature of the palace, however, is the native orchestra of sixty performers, called a *gamelan*. The instruments are of copper in the form somewhat of the saucepans and other utensils used by cooks, and are of all sizes, from that which would suffice for a couple of eggs to that of the largest turbot-kettle series of copper plates from two inches to a yard in length, resting upon sculptured bronze supports; strips of sonorous wood arranged in a similar manner, and resembling the *marimba* of Central America; gongs, large and small, from a few inches to six feet in diameter; and, lastly, strangely shaped violins with two strings. Each performer is supplied with batons or wands with rubber balls for beating the instruments. During the performance the shrill and plaintive sound of women's voices is intermingled with the metallic notes of the instruments, and the general impression produced upon one accustomed to the music of Europe is that of its being more funereal than festive. With the first notes of the music, four lads advance, dressed in red breeches and bright-colored *sarrongs*, wearing the national weapon, the *kris*, with hilts of inlaid silver; their chests ornamented with large plaques of gold, and with a head-dress formed of a Javanese handkerchief, the ends of which are arranged behind in shape of wings; their upper lips are blackened to imitate a moustache. Armed with lances, they execute a warlike dance in time with the music. Following them is a kris-dance by performers dressed in equally picturesque costumes. Then a dance with clubs and shields, the interchange of blows harmonizing with the sounds of the orchestra; a ballet of females, consisting mainly of posturing. Through all this music and movement, however, runs an air of profound melancholy which seems to characterize these people.



Dance of Lances.

The feast known as the *rampoc* may be thus described: Four ranks of Javanese, armed with strong lances from fifteen to eighteen feet in length, form a square of sixty to seventy-five yards upon each side. The first two ranks kneel, the others stand and form an impassable barrier. In the midst of the square is a bamboo cage covered with straw in which is confined a tiger; the half-open door is held only by a little cord. At a signal the orchestra strikes up a slow martial air, and two men with lighted matches fire the straw and retire slowly and in cadence with the music. During the burning of the straw the tiger bounds from side to side of the cage, seeking an exit, until the burning of the cord frees the door and he springs through the opening. Like the bull loosened in the arena, he stops, makes several attempts here and there, hesitates, and the direction he will finally take is uncertain

Attracted by the two men, who are still slowly retiring, he bounds towards them, but they disappear quickly among the lancers. Searching vainly for an avenue of escape, he finally approaches the lancers, and, crouching, with a desperate effort he makes a prodigious leap, attempting to break through the human wall, but falls transfixed by a score of lances upon which he has impaled himself. His savage cry is almost lost in the shouts of applause by the crowd of observers. The terrible blows of his paw shatter the lances like glass during his death struggles. Sometimes a tiger has been known to force the barrier of pikes and fall upon the opposite side, when it becomes necessary to pursue him among the wagons and frantic horses.

The Kris Dance.

New Wealth for California.

HOW THE CORK OAK FLOURISHES THERE.

Every year adds something to the diversity of the products of Californian soil and climate. Every fruit, flower, shrub, or tree known to the temperate zone finds here a genial abode, while semitropical and even tropical products vie with the hardier vegetation of the colder zones in the measure of their lusty growth and generous fruition. And now comes the cork tree to the front to claim its share of public attention as an important source of wealth, for future generations at least, in this land so favored by nature and so lavish in its rich gifts to man. That it will flourish and produce its velvety bark here in prolific perfection the evidences of many a tall and vigorous cork oak now growing in various localities in the State prove beyond doubt or cavil. That few among the earlier settlers in California may live to see the production of cork, as an article of manufacture and commerce, attain any considerable degree of importance may be true; but that it has become the bounden duty of present generations to plant the seed that posterity may reap the harvest is a proposition that no reasonable man will care to dispute.

So far, individual enterprise has established the fact that the cork oak (*Quercus robur*) has here found a congenial home. We have heard it stated that General Bidwell has recently sold in the San Francisco market a considerable quantity of cork bark of the finest velvety quality, the product of trees upon his property at Chico. In a recent visit to Ione, in Amador County, we saw a cork tree raised from an acorn planted thirty-two years ago by Mr. Surface, of that town, the bark of which, on cutting it away, seemed to be of the very best quality of "velvet cork," and would no doubt command a high price in the market. It would appear, therefore, that the soil and climate of California are better adapted to the growth of this tree than those of Spain and Portugal even; for there the first yield of cork bark "is rough, unequal, and woody in texture, is called virgin cork, and is useful only as a tanning substance, or for rustic work in conservatories, etc."

The fact, therefore, having been demonstrated that the tree will grow in California, and will produce as good, if not a superior bark to that elsewhere found, the question presents itself: What is the duty of the State, through its legislative and executive authority, in the matter of fostering the planting and cultivation of the cork tree?

If California is to become the great wine and brandy producing country that it promises to be, the question of the future supply of corks to meet the demand for home consumption alone becomes of the most serious importance. Moreover, the collateral question of creating a new product that is to increase the future wealth of the State adds largely to the magnitude of the subject under consideration. In the six years from 1880 to 1885, inclusive, Spain and Portugal exported manufactured and unmanufactured cork to the value of $23,658,453, besides what was used in home consumption to supply the large demand for wines, etc., produced in those countries. Why should not California take first place in the future in the product and manufacture of this important article of commerce, and so not only keep at home the large amount of money that will otherwise find its way abroad in the purchase of the foreign article, but also reap the harvest of profit that will be derived from its own exportations to supply the always growing demand of the world at large?

Creosote Pills.

V. Tobisch recommends the following method of preparing these:

Mix 1 part of creosote with 2 parts of powdered licorice root (prepared from the *unpeeled* root), and let the mixture stand a few minutes. Then make a mass with water, using about 3 drops for every gramme of creosote.—*Zeitsch. allg. Oest. Ap.-V.*

[Original Communication.]

VOLUMETRIC DETERMINATION OF ACETATES.

Editors of American Druggist.

Gentlemen: In your issue of September 1st, to hand yesterday, I notice an article by Dr. Claude C. Hamilton on the volumetric determination of acetates, which appears to contain some gross errors; and as Dr. Hamilton has formulated the plan for the benefit of pharmacists, it is essential that all calculations and data be correct. It occurs to me that the fundamental error in Dr. Hamilton's article can be found on page 263, line 13 from the bottom, where he states "196+548=4,000 C.c. $\frac{N}{2}$ acid." If this had been made to read as it should be, 196+548=8,000 C.c. $\frac{N}{2}$ acid, some of the subsequent calculations would no doubt have been correct.

Although Winckler and a few others have endeavored to make the normal volumetric solutions of bibasic acids stronger, it is still the rule among chemists, both here and in Europe, to follow the views of Mohr, Fresenius, and Sutton, to prepare normal acids and other solutions for volumetric analysis upon the basis of one hydrogen equivalent. Normal H_2SO_4 then must contain 49.0 acid (=40.0 SO_3) in every liter, and $\frac{N}{2}$ acid should represent 0.0245 (=0.020 SO_3) in each cubic centimeter. Accordingly, the statement on page 264, lines 12 and 13 from the top, that "10 C.c. $\frac{N}{2}$ H_2SO_4 should exactly neutralize 10 C.c. volumetric solution of soda U. S. Ph.," cannot be verified, for 10 C.c. NaOH solution contain 0.40 NaOH, requiring 0.49 H_2SO_4, whereas 10 C.c. $\frac{N}{2}$ H_2SO_4 represent 0.245 H_2SO_4, or but one-half of the necessary amount. Also, if the example on page 263 should represent an actual analysis, something is radically wrong, for if 18 C.c. of true $\frac{N}{2}$ H_2SO_4 were needed to change the violet color to blue, then the Liquor Plumbi Subacetatis examined surely contains only 12.3 per cent of $Pb_2O(C_2H_3O_2)_2$ instead of 24.66 per cent. The error evidently lies in the factor employed by Dr. Hamilton: instead of 0.137 it should have been 0.0685, as can be proven by the equation on page 263, for if 548 $Pb_2O(C_2H_3O_2)_2$ require 196 H_2SO_4 for complete decomposition, 1 C.c. $\frac{N}{2}$ acid=0.0245 H_2SO_4 will decompose exactly 0.0685 of the basic lead salt. 196 : 548 :: 0.0245 : x. x = 0.0685.

It now also becomes necessary to change the values or weights on page 264, as otherwise any pharmacist assuming the stated figures to be correct would be continually in error with the result of his calculations after titration. Using the U. S. Ph. chemical formulas, I would say 1 C.c. $\frac{N}{2}$ H_2SO_4 equals

0.0680	$NaC_2H_3O_2 3H_2O$.
0.0490	$KC_2H_3O_2$.
0.059225	$Zn(C_2H_3O_2)_2 3H_2O$.
0.094625	$Pb(C_2H_3O_2)_2 3H_2O$.
0.0685	$Pb_2O(C_2H_3O_2)_2$.
0.0385	$NH_4C_2H_3O_2$.
0.3881+	$Fe_2(C_2H_3O_2)_6$.

I employ the formula and molecular weight of anhydrous ferric acetate, as the U. S. Ph. mentions the percentage of this salt present in the officinal liquor, and pharmacists should calculate accordingly.

Upon this basis the following quantities may be employed for determination, and each C.c. $\frac{N}{2}$ H_2SO_4 needed for complete decomposition of the salt will indicate exactly 1 per cent of the respective acetate:

6.80	Gm.	Sodii Acetas.
4.90	"	Potassii Acetas.
5.92	"	Zinci Acetas.
9.46	"	Plumbi Acetas.
6.85	"	Liquor Plumbi Subacetatis.
3.85	"	" Ammonii Acetatis.
3.88	"	" Ferri Acetatis.
3.88	"	Tinctura Ferri Acetatis.

A few words concerning the table on page 264 will not be out of place, for, even assuming the value of Dr. Hamilton's $\frac{N}{2}$ acid to be 1 C.c.=0.049 H_2SO_4, some of the data appear incorrect. We are directed to use 38.5 Liquor Ammonii Acetatis and 23.29 each of Liquor and Tinctura Ferri Acetatis for the determination of the respective acetates. With these amounts used, Dr. Hamilton claims that 1 C.c. of his $\frac{N}{2}$ acid will indicate 2 per cent of ammonium acetate and 1 per cent of ferric acetate. That such cannot be the case is easily shown, for

$$\begin{array}{lcccc} & (NH_4C_2H_3O_2)_2 & +\ H_2SO_4 & =(NH_4)_2SO_4 & +(C_2H_3O_2)_2 \\ 2000 \mid & 154 & 98 & 132 & 120 \\ & 0.077 & 0.049 & 0.066 & 0.060 \end{array}$$

Each cubic centimeter of Dr. Hamilton's $\frac{N}{2}$ acid will, therefore, decompose 0.077 $NH_4C_2H_3O_2$, and to show 100 per cent in 38.5 of Liquor Ammonii Acetatis would require 500 C.c. of the $\frac{N}{2}$ acid, instead of 50 C.c. as Dr. Hamilton assumes. Suppose 10 C.c. of $\frac{N}{2}$ acid are required to show the desired blue color; then, according to Dr. Hamilton's table, this would indicate 10 times 2 per cent, or 20 per cent acetate=7.70; but each cubic centimeter, as shown before, can decompose only 0.077 $NH_4C_2H_3O_2$, and, therefore, 10 C.c.=0.077 × 10 or 0.77—a remarkable inconsistency.

In the case of Liquor and Tinctura Ferri Acetatis the statements appear equally strange, unless Dr. Hamilton assumes the double atom of trivalent ferric iron as capable of displacing only 2 atoms of univalent hydrogen. Such an assumption would warrant the figures given in the table on page 264, but it seems hardly fair to charge such a blunder to the author of the paper. If, however, ferric iron asserts its true valence, we shall find that 465.8 $Fe_2(C_2H_3O_2)_6$ will require 3 times 98=294 H_2SO_4 for complete decomposition, and then 1 C.c. Dr. Hamilton's $\frac{N}{2}$ acid=0.049 H_2SO_4 can decompose only 0.07763 ferric acetate, anhydrous, and not 0.2329 as the table would indicate. Suppose 10 C.c. of the $\frac{N}{2}$ acid are required also in this case to show the desired blue color; this would indicate 10 times 1 per cent, or 10 per cent of acetate, which for 23.29 amounts to 2.329; but as 1 C.c. $\frac{N}{2}$ acid can decompose only 0.07763 ferric acetate, we have in reality 0.07763 × 10=0.7763, or about 3.33 per cent $Fe_2(C_2H_3O_2)_6$ instead of 10 per cent.

Dr. Hamilton's paper, having been read before the Missouri State Pharmaceutical Association and now printed in your journal, is likely to be followed by many pharmacists, some of whom may not take the trouble to verify all the calculations, and are, therefore, liable to arrive at erroneous results unless the errors be made known.

Very respectfully yours,

Chas. Caspari, Jr.

Maryland College of Pharmacy,
Baltimore, September 5th, 1891.

P. S.—As you will note, the practicability of the plan has not been taken into consideration at all. I have simply endeavored to get at the correct calculations.

C. C., Jr.

Administration of Creosote.

Among the methods proposed for disguising the disagreeable taste of creosote when in mixture, the following appear to be the most preferable (*Rép. de Pharm.*, September 10th):

1. *In Milk.*—Dissolve the creosote in a definite quantity of rum, or in alcohol of 60 per cent, and add a measured quantity of this, containing the proper dose of creosote, to warm milk strongly sweetened with sugar.

2. *In the following Mixture:*

			About:	
Creosote	10	Gm.	160	grains.
Alcohol, 80 per cent	250	"	10	fl.oz.
Glycerin	100	"	3	"
Syrup of Tolu	500	"	10	"
Cherry Laurel Water	70	"	2½	"
Water	70	"	2½	"

Dose: 10 Gm. (or about 135 minims), containing 0.10 Gm. (or 1.6 grains) of creosote. The proportions may of course be somewhat varied to accommodate themselves to our usual measures.

Peptonized and Other Sick Diet.

THE following recipes are taken from Dr. R. W. Burnet's exhaustive work on "Foods and Dietaries (or Manual of Clinical Dietetics)."* Some of these recipes are of a nature requiring not infrequently the advice or assistance of the pharmacist. For this reason they will be generally welcome:

Peptonized Beef Tea.—A pound of thinly minced lean beef is mixed with a pint of water, and 10 grains of bicarbonate of soda added thereto. The mixture is then simmered for an hour and a half in a covered saucepan. The resulting beef tea is decanted off into a covered jug. The undissolved beef residue is then beaten up with a spoon into a pulp and added to the beef tea in the covered jug. When the mixture has cooled down to about 140° F. (or when it is cool enough to be tolerated in the mouth), a tablespoonful of the liquor pancreaticus is added and the whole well stirred together. The covered jug is then kept under a "cosey" for two hours and agitated occasionally. At the end of this time the contents of the jug are boiled briskly for two or three minutes and finally strained. The product is then ready for use.

Peptonized Gruel.—Gruel may be prepared from any of the numerous farinaceous articles in common use—wheaten flour, oatmeal, arrowroot, sago, pearl barley, pea or lentil flour. The gruel should be well boiled and made thick and strong. It is then poured into a covered jug and allowed to cool until it becomes lukewarm. Liquor pancreaticus is then added in the proportion of a dessertspoonful to the pint of gruel, and the jug is kept warm under a "cosey" as before. At the end of a couple of hours the product is boiled and strained.

Peptonized Milk Gruel.—First a thick gruel is made from any of the farinaceous articles above mentioned. The gruel, while still boiling hot, is added to an equal quantity of cold milk. The mixture will have a temperature of about 125° F. To each pint of this mixture two or three teaspoonfuls of liquor pancreaticus and 10 grains of bicarbonate of soda are added. It is kept warm in a covered jug under a "cosey" for an hour or an hour and a half, and then boiled for two or three minutes and strained. If the product has too much bitter flavor a smaller quantity of the liquor pancreaticus must be used in the next operation. Invalids take this compound, as a rule, if not with relish, at least without any objection.

As it is impossible to obtain pancreatic extract of absolutely constant strength, the directions as to the quantity to be added must be understood with a certain latitude.

Peptonized Milk.—A pint of milk is diluted with a quarter of a pint of water, and heated to a temperature of about 140° F. Should no thermometer be at hand, the diluted milk may be divided into two equal portions, one of which is heated to the boiling point and added to the cold portion, when the mixture will be of the required temperature. Two teaspoonfuls of the liquor pancreaticus and 10 grains of bicarbonate of soda are then added to the warm milk. The mixture is poured into a covered jug, and the jug is placed in a warm situation under a "cosey" in order to keep up the heat. At the end of an hour or an hour and a half the product is boiled for two or three minutes. It can then be used like ordinary milk.

The object of diluting the milk is to prevent the curdling which would otherwise occur and greatly delay the peptonizing process. The addition of bicarbonate of soda prevents coagulation during the final boiling, and also hastens the process. The purpose of the final boiling is to put a stop to the ferment action—when this has reached the desired degree—and thereby to prevent certain ulterior changes which would render the product less palatable. The degree to which the peptonizing change has advanced is best judged of by the development of a peculiar bitter flavor which is always associated with the artificial digestion of milk. The point aimed at is to carry the change so far that the bitter flavor is just perceived but not unpleasantly pronounced.

Irish Moss.—Wash well an ounce of Irish moss, and then let it soak for four or five hours in a quarter of a pint of cold water. Add half a pint of milk and half a pint of water (or a pint of milk); boil from five to seven minutes, and strain through muslin. It may be flavored with cinnamon or vanilla, or simply sweetened with sugar, and when cool will set firmly.

Beef Tea.—Cut up a pound of lean beef into pieces the size of dice; put it into a covered jar with 2 pints of cold water and a pinch or two of salt. Let it warm gradually and simmer for a couple of hours, care being taken that it does not reach the boiling point.

Beef Essence.—Take 1 pound of gravy beef, free from fat and skin. Chop it up very fine, add a little salt, and put it into an earthen jar with a lid; fasten up the edges with a thick paste, such as is used for roasting venison in, and place the jar in the oven for three or four hours. Strain through a coarse sieve.

Calf's-foot Jelly.—Take two calf's feet, split them, boil them in 1 quart of water, skim them thoroughly, and let them simmer for about four hours. Strain, and when cold remove the fat. Put into a stewpan with 1 pound of sugar, the juice of six lemons, the rind of three, half a stick of cinnamon (bruised). Let this digest over a slow fire, and then add the whites of three eggs well whipped up with 5 ounces of water, and continue until it begins to boil. Add half a pint of sherry; allow it to simmer gently for another quarter of an hour. Strain through a jelly bag. Repeat the straining several times, and pour into moulds.

Wine Jelly.—Into an enamelled saucepan put a pint of cold water; add an ounce and a quarter of Russian isinglass and 3 ounces of sugar. Let this boil gently till the isinglass is dissolved, removing the scum from time to time. Strain, and add the juice of one lemon or of two oranges and a third of a pint of sherry. Pour into a mould and turn out when required.

Port Wine Jelly.—Put into a jar 1 pint of port wine, 2 ounces of gum arabic, 2 ounces of isinglass, 2 ounces of powdered white sugar, a quarter of a nutmeg grated fine, and a small piece of cinnamon. Let this stand closely covered all night. The next day put the jar into boiling water, and let it simmer till all is dissolved, then strain it, let it stand till cold, and then cut it up into small pieces for use (Ringer).

Milk, Egg, and Brandy.—Scald some new milk, but do not let it boil. It ought to be put into a jug and the jug should stand in boiling water. When the surface looks filmy it is sufficiently done, and should be put away in a cool place in the same vessel. When quite cold beat up a fresh egg with a fork in a tumbler with a lump of sugar; beat quite to a froth, adding a dessertspoonful of brandy, and fill up the tumbler with scalded milk.

Milk Lemonade.—To a pint of boiling water add 6 ounces of loaf sugar, 6 ounces of lemon juice, a like quantity of sherry, and 16 ounces of cold milk. Stir thoroughly and strain through a jelly bag.

Milk and Isinglass.—Dissolve a little isinglass in water, mix it well with half a pint of milk, then boil the milk, and serve with or without sugar, as preferred.

Improvement in the Manufacture of Cod-Liver Oil.

PETER MOELLER, of Christiania, the well-known manufacturer of cod-liver oil, has obtained patents for an improved process of obtaining cod-liver oil free from the more or less rancid or fishy taste which accompanies the oil so commonly. The process is an old principle applied to this particular product. It consists in preventing the access of air during the trying-out of the oil, as it has been found that any rancidity is due to the oxidizing action of the air upon the fatty acids of the oil. The trying-out is carried on in specially constructed boilers through which a current of an indifferent gas (carbonic acid) is constantly passing. This displaces not only the air in the apparatus, but also that which is gradually given up by the livers themselves. When the trying-out is completed, the current of gas is maintained until the contents of the boiler are cold.

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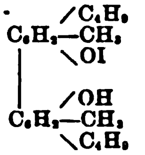
* In Wood's Medical and Surgical Monographs, vol. xi., No. 3.

Europhen.

EUROPHEN (or iodo-di-iso-butyl-ortho-cresol), another new dermic remedy, is a substance formed by the action of iodine upon iso-butyl-ortho-cresol. Its formula is:



$$\begin{array}{l} C_6H_2 \begin{cases} C_4H_9 \\ CH_3 \\ OI \end{cases} \\ \quad | \\ C_6H_2 \begin{cases} OH \\ CH_3 \\ C_4H_9 \end{cases} \end{array}$$

It appears as a fine yellow powder of an aromatic, saffron-like odor; insoluble in water and glycerin, readily soluble in alcohol, in ether, in chloroform, and in oil; percentage of iodine, 28.1. Europhen is permanent in the dry state; but when *heated* with water to 70° C. (158° F.), or if left in contact with *moisture* even at ordinary temperature, it gives off free iodine. Solutions and ointments of europhen should therefore be prepared in the cold. Its *oily* solutions should always be *filtered*, as a sediment—owing to the formation of a second iodine compound insoluble in oil, but not to the europhen itself—gradually deposits in them. According to the observations thus far made, europhen appears to be *non-poisonous*. Dr. P. J. Eichhoff, chief physician of the Hospital for Skin Diseases and Syphilis at Elberfeld, reports on 33 cases in which he employed europhen. These include ulcus durum, ulcus molle, condyloma, gonorrhœa, ulcus cruris, lupus, psoriasis, eczema, favus, and scrofuloderma. All the *venereal* cases were *favorably influenced* by the europhen, save gonorrhœa; the cases of *ulcus molle* were *promptly cured* by simply dusting with europhen in substance; *constitutional syphilis* in every form was benefited by the external application of europhen (in substance), as well as by subcutaneous injections of the latter remedy in oily solution (0.015–0.1 Gm. [¼–1½ grains] once daily).

Of the *non-venereal* affections, all were benefited by europhen (5–10% ointments), except eczema parasitarium, psoriasis, and favus.

Besides its non-poisonousness and freedom from disagreeable odor, europhen, according to Dr. Eichhoff, possesses the advantage over iodoform of great *attenuability*, owing to its lightness in weight; 1 part of europhen will cover as great a surface as 5 parts of iodoform.

[*Note.*—This substance is not to be confounded with euphorin (phenyl-ethylic-urethane).]—*Merck's Bulletin*, September, 1891.

Iodides of Antipyrine.

M. DUROY reports (*Bulletin de l'Académie de Médicine*) that he has obtained several iodides of antipyrine, all of which are capable of being used in therapeutics. The method of preparing an iodide of antipyrine is very simple. One equivalent of iodide dissolved in alcohol of 90°, and brought into contact with an equivalent of antipyrine dissolved in five times its weight of distilled water, yields a brick-yellow precipitate which is antipyrine iodide. It is soluble in two and a half times its weight of water at 25° C.

Preparation of Ammonium Sulphide.

ED. DONATH recommends (in *Chem. Zeit.*) to prepare the solution of ammonium sulphide to be made, instead of in the usual method (saturating ammonia with hydrogen sulphide), as follows:

Into a capacious tubulated retort introduce 1 part of powdered ammonium chloride, and pour upon it a solution of 2 parts of commercial crystallized sodium sulphide in 2½ parts of hot water. Then apply heat and collect the distillate in a receiver until about half of the liquid has passed over. The yellowish distillate is a concentrated solution of ammonium sulphide.

Cement for Porcelain.

ACCORDING to the *Rundschau* (Prag), freshly precipitated casein is introduced into a bottle so as to fill the latter one-fourth. It is then filled with a solution of silicate of soda, and agitated, whereupon the casein will be dissolved. The solution may then be used at once.

Emulsions of Oils.

P. VAN ASPEREN reported at the last meeting of the Netherlands Pharmaceutical Society on emulsions of oils. Regarding *Cod Liver Oil* he stated that the refined, pale oil is much easier to emulsify than the brown oil.

As most suitable method of "emulsifying" *Cod Liver Oil* he recommends the following:

Cod Liver Oil	20 parts.
Soft Soap (Pharm. Neerl.)	1 part.
Water	5 parts.

Dissolve the soft soap in the water; then thoroughly agitate the oil with the mixture.

[*Note.*—*Sapo kalinus*, or soft soap, of the Netherlands Pharmacopœia, is thus prepared:

Solution of Potassa (15 per cent of KOH)	100 parts.
Olive Oil	65 "
Water	a sufficient quantity.

Mix the solution of potassa with the olive oil, and heat on a water bath until a perfect soap has been produced. Dissolve this in 100 parts of water, and evaporate the solution, under constant stirring, until the residue weighs 100 parts.]

The same method may also be used for emulsifying *Castor Oil:*

Castor Oil	20 parts.
Soft Soap	1 part.
Oil of Peppermint	q. s.
Water	5 parts.

Proceed as under Cod Liver Oil, and flavor with oil of peppermint.

Oil of Turpentine may likewise be emulsified in the same manner:

Oil of Turpentine	50 parts.
Soft Soap	4 "
Water	40 "

—After *Pharm. Zeit.*

Hyacinth Essence.

Hyacinthin	60 Gm.
Oil of Neroli, Bigarade	10 "
Tincture of Musk	50 "
" " Benzoin	100 "
Extract of Jasmin (triple)	500 "
Alcohol, deodorized	3000 "
Orange-Flower Water (triple)	800 "

[*Note.*—Hyacinthin is a synthetic product, possessing the real odor of the hyacinth.]

Pistoia Powder.

THERE is a powder made in a convent near Pistoia, Italy, and it is used very extensively as a protective against gout. The following is said by Mr. Chastaing to be its composition:

℞ Bryonia Root,	
Gentian,	
Chamomile	āā 10 Gm.
Colchicum Root	20 "
Betony	50 "

This is made into 365 powders, one of which is taken each day of the year in a full glass of cold or hot water. —*Medical Record.*

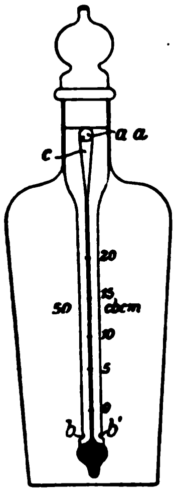
Chlorine Mixture.

A NEW mixture for the rapid and extemporaneous generation of chlorine gas has been patented by O. Stueber, of Stuttgart (Germ. Pat. 51778). This consists of chloride of lime mixed with a quantity of bisulphate of sodium or potassium sufficient to liberate all the chlorine. It may be used either as simple mixture, the addition of water alone being sufficient to liberate the gas; or it may be compressed into pieces (cubes, etc.).

IMPROVED SPECIFIC GRAVITY BOTTLE.

Dr. Fritz Voeller describes a new specific gravity bottle in the *Zeitsch. f. angew. Chemie* (No. 13).

It is a small bottle of about 50 C.c. capacity, having an accurately ground stopper to which a thermometer is fused. The latter consists of an interior mercury tube (the thermometer proper), and an exterior hollow tube having two small orifices near the bottom, at *b* and *b'*, which permit the liquid to be tested to ascend along the mercurial column, so that the latter may indicate the true temperature. The same outer thermometer tube has a little hole above, at *a*, where the surplus liquid may run out. The neck of the flask has also a little hole exactly corresponding with the hole in the stopper when the latter is turned so as to meet it.



When the bottle is to be used it is filled with the liquid to be tested, at a temperature somewhat below 15° C., then the stopper slowly and gradually inserted, and turned so that the two orifices in the stopper and neck correspond. As the liquid expands while rising to 15° C., the surplus will exude through the orifice. The moment that 15° C. is reached the stopper is rotated so as to cover the inner hole. The outside of the bottle is then thoroughly cleaned, and the bottle then weighed. Its capacity for water at 15° C. (or at 4° C.) being previously known, the specific gravity of the liquid is easily determined.

Bleaching Sponges.

The method of bleaching sponges, given in the National Formulary under No. 348 (Spongia Decolorata), is probably all-sufficient for every purpose. Yet it will be useful to have at one's disposal other methods, which may be used when the ingredients required for the other are not all available.

Roeser has recently published a method (in *Bulletin Commercial*, No. 9, September), which is as follows:

Wash the sponges first with warm distilled water, containing in each liter 20 drops of a 10-per-cent solution of caustic soda; then rinse them in pure distilled water (warm), so as to deprive them of everything soluble in this liquid. The temperature of the water here and subsequently should be about 104° to 110° F. [Ordinary water, if practically pure, may be used.]

Press the excess of water from the sponges, then immerse them, without squeezing, into a glass jar containing dilute bromine water. The latter is prepared by adding to each liter of warm distilled water 30 Gm. (1 ounce) of a saturated solution of bromine in water. Leave the sponges in the liquid until they are decolorized; then remove them, press them, and repeat the treatment once or twice with fresh bromine water until they are as white as is desired or possible. Next immerse them in warm water rendered slightly alkaline (with 20 drops of a 10-per-cent soda solution to each quart of water), and, lastly, wash them with pure warm water until they are odorless.

* * *

Hypodermic Injection of Morphine.—Bombelon recommends the meconate of morphine as the most suitable salt for hypodermic use. He states that it keeps well in solution and causes no pain. This has also been the experience in New York hospitals in former years. For some reason not known to us the salt has fallen into disuse.

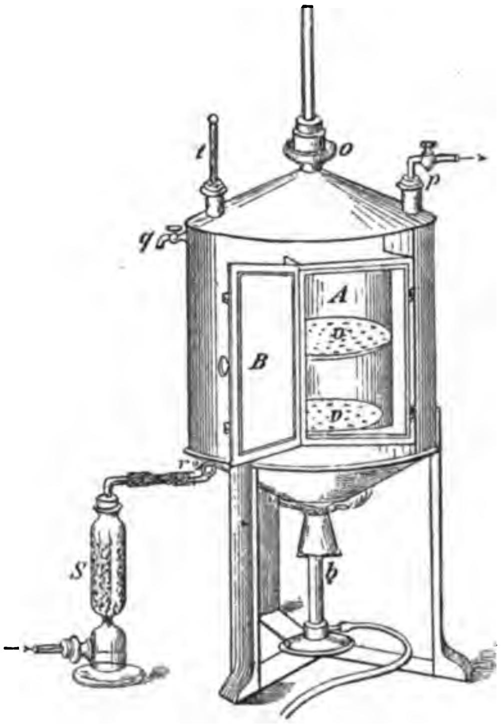
Rubber Cement.—To fasten glass letters, figures, etc., on glass (show windows) so that, even when submerged in water for several days, they will not become detached, use an india-rubber cement. The best for this purpose consists of 1 part india rubber, 3 parts of mastic, and 50 parts of chloroform. Let stand for several days at a low temperature to dissolve the cement. It must be applied very rapidly, as it becomes thick very soon.—*Sci. Amer.*

A NEW DRYING APPARATUS.

A. Sidersky recommends the drying apparatus here described, which works under a partial vacuum.

It consists of a cylinder of double copper walls about 12 inches high and 14 inches in diameter. Its inner bottom is flat, while the outer is made to bulge downward. At the top the outer cylinder has a conical roof, provided with the openings *p* and *t*, which communicate with the interior. B is a door which can be closed hermetically, being lined at the edges with rubber. At *r*, near the bottom, is an inlet provided with a stopcock, by means of which a current of dry air may be admitted to the interior.

When the apparatus is to be used water is poured into the opening at *o* until it begins to flow from *q*. A cork bearing a long glass tube is then inserted in *v*. This acts as a condenser. A thermometer is inserted in *t*, and *p* is connected with the air or vacuum pump. The water in the space between the two walls is now heated by means of a suitable burner, the stopcock at *q* having, of course, been previously closed. Next the vacuum pump is set going, when the vapors given out by substances placed in the inner chamber will be rapidly drawn off, causing a speedy drying of the introduced substances. When the operation of drying is completed, the stopcock *r* is opened, and a current of air, dried by passing through the chloride of calcium tube S, drawn through the apparatus.—*Chem. Centralb.*



Succinimide of Mercury.

Vollert recommends this salt of mercury as the most suitable for hypodermic use, since it causes no pain whatever and produces no disagreeable local effects. It may be combined with cocaine without interfering with the effects of either constituent. If the quantity of cocaine is, however, notably exceeding that of the mercury salt—say 3 to 1—a resinous compound, produced by the reaction between the substances, is separated.

Succinimide has the composition $CH_2CO.NH.CH_2CO + H_2O$. It is usually prepared by very rapidly distilling ammonium succinate. It is a crystalline solid, very soluble in water, also in alcohol. The hydrogen of the NH group may be replaced by metals. Thus, the mercury salt is obtained when an alcoholic solution of succinimide, mixed with a few drops of ammonia, is added to an ethereal solution of mercuric chloride.

Notes upon the Preparation and Use of Ointments.

Dr. L. Duncan Bulkley, of New York, in a recent number of the *Therapeutic Gazette*, offers a number of practical suggestions regarding this class of remedies.

It is better not to trust to any artificial means for preserving the freshness of ointments, but to secure sweet and good material, and always to reject that which is at all old, or ointments which have been long prepared. It is important to avoid the slightest rancidity in ointments, and it is better to order ointments to be freshly compounded of the strength desired, rather than to take those officinally prepared and kept in stock.

Among cerates, which are in some respects more valuable for ointments for most skin affections than lard, we have two, *ceratum simplex*, consisting of white wax 30 parts, lard 70 parts; *ceratum cetacei*, which is composed of spermaceti 10 parts, white wax 35 parts, and olive oil 55 parts. To these should be added *unguentum cetacei*, which is very like the latter, only somewhat softer. These all have considerable body, and when spread on the skin form a protective coating, more suitable for many conditions than lard alone; but the first mentioned, or simple cerate, is far too hard for easy application in most diseases of the skin. The *glyceritum amyli*, composed of starch 10 parts and glycerin 90 parts, is a good basis for ointments when fatty substances are not well borne, or when it is desirable to remove the application frequently with water. Combined with oil of cade 25 parts, sapo viridis 15 parts, and glycerite of starch 60 parts, it makes a most valuable application in psoriasis, which can be well rubbed in at night and washed off completely in the morning.

The *oleum theobromæ* is ordinarily but little used in compounding ointments. It is particularly useful when added, in about a quarter part, to ointments for use on the hairy scalp, to give them a low melting point and to aid in forming a protective coating over the skin; when employed in too large a proportion it will prove irritating to many skins.

Under the head of "ointments" we find but two preparations in the Pharmacopœia—the *unguentum simplex*, composed of lard 80 parts and yellow wax 20 parts, and the *unguentum aquæ rosæ*, of expressed almond oil 50 parts, spermaceti 10, white wax 10, and rose water 30 parts. The *unguentum simplex* is a good combination—much better for general use than simple lard; but, on the other hand, it is often found to be too hard, and ointments made with it will often be difficult of application, and when made up for some time with other ingredients will become too stiff for ready use; as ordinarily kept in drug stores it has often been found quite rancid.

The best ointment of all, when fresh and properly made, is the *unguentum aquæ rosæ*, the cold cream of the Pharmacopœia. But some judgment and skill are necessary in its preparation, for unless very perfectly compounded, with prolonged rubbing together of the ingredients, the ointment will not be perfect; in summer, also, it will require rather a larger proportion of the spermaceti and white wax in order to have the proper consistence for a perfect application. Very frequently, when the skin tends to be too dry, a portion of the water may be replaced by glycerin. Occasionally the odor of the rose water is not agreeable to the patient, and simple distilled water may be used in its place. The water held in this ointment is undoubtedly an important element in its remarkable effects on the skin, for the *ceratum cetacei* and *unguentum cetacei* have quite a similar composition, but are by no means agreeable to most skins.

When the various products of petroleum, known in the Pharmacopœia by the general name of *petrolatum*, were introduced, it was thought they would furnish the best possible bases for ointments, and that they would rapidly supersede all other excipients; in Dr. Bulkley's opinion they will never supplant those already mentioned and others of recognized value. They are by no means always agreeable and non-irritating to the skin; indeed, many individuals are found who cannot bear them on the skin at all. Most of them have not body enough to form good ointments, although for simple inunction, as a lubricant, or for the application of carbolic acid to the skin as an antipruritic, vaseline serves the purpose very well.

Recently, when lanolin, and subsequently agnine, were presented to the profession, it was expected that this substance would replace other ingredients as an excipient for ointments. But again we have been disappointed, and lanolin forms but a very small portion of the base of ointments used by those especially occupied with diseases of the skin. It is too sticky and not easy of application, and, moreover, it will often prove irritating to a delicate skin. While it was thought to afford a means for the more ready absorption of medicaments, more experience has shown it to be questionable if this is the case. Indeed, in some experiments by Brooke it was shown that the substances incorporated with lanolin were the slowest in entering the system. Lanolin is, however, useful as an addition to certain ointments, in the proportion of about 20 per cent, to give an adhesive quality to them, thus securing a firmer and more adherent coating for the affected parts.

Of some forty officinal ointments, very few can be prescribed, as they are, with advantage in diseases of the skin. Thus the carbolic ointment is made of a strength of 10 per cent, which is far too strong for most skins; whereas the tannin ointment of the same strength is too weak to be of real service. The belladonna ointment is also of the same strength, and is capable, if used at all freely, of producing serious constitutional effects. Also, the officinal ointment of chrysarobin should be diluted for most skins.

Eight ointments are officinal containing preparations of mercury. Of these the blue ointment, containing 50 per cent of metallic mercury, is well known and of great value; but for inunction on most skins it requires dilution by one-half, in order not to excite too much local irritation. White precipitate ointment has commonly to be diluted two or three times, even in psoriasis and seborrhœic eczema. The red iodide ointment is of fair strength, but to be effective in lupus, or where its corrosive power is required, it should be employed much stronger. Citrine ointment, one of the best known of the mercurial applications, is far too strong to be freely used. When diluted two to four times it often serves a good purpose in reducing infiltrations of the skin. The yellow and the red oxide of mercury require to be very greatly diluted for use about the eyes.

The single ointment of iodine is a good preparation, containing a trifle of iodide of potassium. A prescription which is of great service in reducing glandular enlargements in syphilis is a mixture of iodine ointment with the ordinary mercurial ointment in equal parts. When well rubbed together an ointment of the green iodide of mercury is made, which acts much more quickly than either of the ointments alone. For delicate skins it may require some dilution, but generally it is well borne. It is useful as a parasiticide in ringworm and favus of the scalp.

The *unguentum picis liquidæ* is an excellent remedy, composed of equal parts of tar and suet; but it is far too strong for general use undiluted. When combined with oxide of zinc and rose ointment it forms one of the most perfect applications known for a large share of cases of subacute eczema, both in children and in adults:

℞ Ung. Picis	ʒ ij.
Ung. Zinci Oxidi	ʒ ss.
Ung. Aquæ Rosæ	℥ iv.
M.	

The ointments of the carbonate of lead and iodide of lead, each 10 per cent, are also good combinations.

The latter is certainly an excellent means for causing absorption of enlarged strumous glands. The stramonium ointment, containing 10 per cent of the extract of stramonium, is likewise a good application, and forms a most valuable base for combination with acetate of lead and opium in the treatment of hæmorrhoids.

There are four ointments containing sulphur, only one of which, the *unguentum sulphuris*, containing 30 per cent of sublimed sulphur, is well known or much used. This is also too strong for direct application to most skins; diluted two or three times with a little storax, and perhaps a little tar ointment, it forms an excellent treatment for scabies, although the more agreeable applications of naphthol and resorcin have largely taken its place in dermatological practice.

The oxide of zinc ointment of our Pharmacopœia is a fairly good preparation. It is made with benzoinated lard, which is not agreeable to all skins; it is sometimes rancid and irritating in cases in which a freshly prepared zinc ointment in cold cream is grateful and healing.

Diachylon ointment, when freshly and properly made, is one of the most valuable means of local therapy known for many diseases of the skin. The preparation made according to the original formula of Hebra, and given in the German Pharmacopœia, is a soft, buttery ointment, easily spread, and of a delightfully soothing character to most skins, and is decidedly superior to the ointment made according to the U. S. Pharmacopœia.

A few words may now be added in regard to the actual preparation or compounding of ointments, a feature which continually requires the attention of the physician if he would have success in the treatment of skin diseases. It is desirable for the physician to frequently inspect the ointments or other preparations which are being employed, and to test them by smelling, feeling, rubbing on the skin, etc.

More harm is commonly done by too strong ointments than is usually supposed. The skin is a sensitive and irritable organ, and more often wants to be treated considerately and soothed into good action than it does to be stimulated and irritated. It is well to begin with a mild preparation, increasing the strength as circumstances seem to demand.

It is also well to remember that the average patient, who has not heretofore been instructed, or who has not had special experience, knows nothing in regard to the best mode of application of an ointment, and if the highest degree of success is to attend the use of any particular remedy it must be only by its proper employment. Careful directions should, therefore, always be given to patients exactly how to apply ointments.

Where it is desired to keep a part continually under the effect of an ointment, it should be soaked in it, if it were possible, as completely as though the part were immersed in a very large mass of the same; but as this is not possible, we have recourse to lint, and the ointment, which should always have considerable body, is spread to a very thick layer on the woolly side of the lint, and then firmly bound on the part.

An excellent illustration of the necessity for minute directions in regard to all these data is found in connection with eczema of the scrotum. When treated carelessly, or when the patient merely smears on an ointment, the disease will prove most distressing and rebellious; but when, on the other hand, very minute directions are given in regard to the sudden and brief application of hot water once daily, at bedtime, and when the part is quickly dried and enclosed in a piece of lint spread with the tar and zinc ointment previously alluded to, and covered by a suspensory bandage, the patient has complete relief, and with proper accompanying treatment can surely be cured, and that with reasonable speed.

The demand in dermatology is not so much for new drugs, applications, or methods of treatment, as it is for the diffused knowledge of what is already known to be of service, and the faithful carrying out of methods which experience and observation have proved to be useful.

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Cinchona Cultivation in Bengal.—The statistics of cinchona cultivation in Bengal for the year 1890–91 have recently been published. During that period the total number of plants, cuttings, and seedlings in the Government plantations amounted to 4,749,861, divided as follows: Plants in permanent plantation, 4,515,861; stock plants for propagation, 4,000; and seedlings, 230,000. The quantity of bark in store at the beginning of the year was 426,256 pounds, while the outturn of bark of the year ended April last was 293,972 pounds, making a total of 720,247 pounds. From the latter amount have been issued, for manufacture of cinchona febrifuge and sulphate of quinine, 250,330 pounds, leaving a balance in stock at the end of the year of 460,917 pounds.

Constituents of Oil of Rose.

Ulrich Eckart has made an exhaustive examination of genuine oil of rose, both of Turkish and of German origin, and has found them to contain the following constituents:

1. Ethyl alcohol, about 5 per cent.
2. Elæopten, the odorous liquid portion. This turned out to be a true chemical individual, having the composition $C_{10}H_{18}O$, to which the name *rhodinol* was applied. It belongs to the class of unsaturated primary alcohols. It was found to be a very sensitive substance. After separating it (in conjunction with the ethyl alcohol present) by cooling from the stearopten, it appears as a greenish liquid possessing a mild, agreeable odor, somewhat resembling that of mint, and having a specific gravity of 0.891 (German) or 0.8804–0.8813 at 15° C. If more than about 30 Gm. are subjected to distillation at one time, the liquid decomposes and leaves up to 25 per cent of a non-volatile residue. The very act of separating the first fraction, viz., the ethyl alcohol, from the elæopten, causes some of the latter to decompose. Hence the alcohol must be determined in one portion, and the true elæopten in another. The latter is, however, completely volatilized if cautiously distilled at a very low pressure.
3. The stearopten. This melts at 33.5° to 36.5° C., and consists of two different bodies (stearoptens).—After *Arch. d. Pharm.*

Indian Opium in Medicine.

At the recent British Pharmaceutical Conference Mr. E. M. Holmes read a paper on "The Opium used in Medicine," in which it is stated that Indian opium is not used in England. In one recent year only two cases of Malwa opium appeared to have been imported into this country, and it was unknown to retail chemists. He thought that there was no reason why India should not take the place of Turkey in supplying Great Britain and her colonies with the drug. It was true that the Indian opium differed materially from Turkey opium, as, from the process of manufacture at present employed, it contained 30 per cent of water, was apt to ferment, and contained less morphia than Turkey opium. But he saw no reason why, if the necessity arose, some improvement could not be effected in the process of manufacture. The poppy grown in the higher altitudes in India yielded opium containing 50 per cent more morphia than that gathered in the plains. He then proceeded to adduce reasons for anticipating that it may be beneficial for the Indian Government to look to Great Britain as an outlet for the opium produce, and these are: The Chinese are now cultivating the poppy to a large extent, with the result that the opium exports of India are on the decrease; as the interior of Africa is opened up a large supply of the drug will be required by the inhabitants of that country; and should Turkey become the seat of a European war our supplies from that country will fail, and then it would be that India might step in. He also referred to the manufacture of opium in Australia, and gave it as his opinion that opium could be manufactured in India, under proper English supervision, which would compete with the Turkey variety. Specimens of Indian opium were exhibited.—After *Pharm. Journ.*

Hypnal.

Hypnal, or monochloral-antipyrine, is prepared, according to Demandre, as follows:

To a solution of 47 Gm. of chloral in 50 C.c. of distilled water add a solution of 53 Gm. of antipyrine in 50 C.c. of water, and transfer the mixture into a funnel provided with a stopcock (separating funnel). When the mixture has separated into two layers, an upper, aqueous one and a lower, oily one, draw off the two layers separately. After about twenty-four hours the oily layer will have been converted, almost entirely, into a mass of transparent, rhombic prisms, and a few small crystals will be found in the aqueous portion. The mother liquids having been poured off in both cases, the crystals are collected together and dried, first between blotting paper and afterwards over sulphuric acid.—*Petit Mon. de la Pharm.*

History and Nature of Alkaloids and Vegetable Bases.

THE following is a more or less free translation of part of the introduction of a very interesting and valuable work on alkaloids by Dr. Pictet, which has just appeared in German translation.* The work embodies the latest views entertained regarding their constitution, and groups the several bases together so as to show their relationship.

Of the various compounds belonging to the domain of organic chemistry, the class of vegetable bases designated as *alkaloids* probably attracts the deepest interest and attention of the chemists. They owe this interest to the peculiar chemical or physiological properties possessed by them. For many years, however, all attempts to discover the internal structure of their molecule, and to discover their relationship with other compounds of known constitution, were unsuccessful. While a host of other bodies of an equally complicated nature had been studied with great assiduity and successfully built up by synthesis, the alkaloids appeared to baffle all such attempts. It is only about fifteen years since the veil resting upon their constitution began to lift. The discovery and study of the pyridine and chinoline bases in coal tar, the direct connection of which with the vegetable bases was soon recognized, largely contributed towards giving a solid foundation to the researches. A number of the foremost chemists devoted themselves entirely to this study, with such success that we are to-day able to have definite conceptions regarding the constitution of most of the important alkaloids. The main step was made through the synthesis of two alkaloids. One of these is *conine*. In the course of a series of important investigations on this base, Ladenburg succeeded in building it up from the elements. This discovery revolutionized this domain in the same manner as the whole field of organic chemistry had been affected by Woehler's synthesis of urea. The other alkaloid is *trigonelline*. This was discovered by Jahns, in 1885, in the seeds of *Trigonella Fœnum-Græcum* (fenugreek), and was recognized by him to be identical with the methyl-betain of nicotic acid, which had already been prepared artificially by Hantzsch.

Although the investigations of other bases have not yet been crowned by such remarkable success, yet science has been enriched by a large number of valuable facts and observations. . . .

The history of the alkaloids begins with our century. In 1803 Derosne (at Paris) obtained from opium a crystalline substance which he called "salt of opium," and which must have been a mixture of morphine and narcotine. He ascribed the basic properties of this substance to an impurity believed to be alkali derived from that used in the preparation. In 1804 Séguin likewise had morphine in his hands without recognizing its character. It was Sertürner (a German apothecary) who has the merit of having discovered the first vegetable base. The latter announced in 1806 that he had extracted from opium an acid—*meconic acid*—and a crystalline substance of a basic nature which unites with acids to form salts, and exists in opium probably as meconate. Sertürner's discovery, however, remained unnoticed. At that time it was held that plants could produce only acids or substances of a neutral reaction. Sertürner had to repeat his announcement in a second paper, which appeared in 1817 under the title "Ueber das Morphium, eine neue salzfähige Grundlage, und die Mekonsäure als Hauptbestandtheile des Opiums" [On morphine, a new salifiable base, and on meconic acid, as chief constituents of opium]. In this new paper Sertürner calls morphine a vegetable alkali and brings it in relation to ammonia.

From this time on the search after alkaloids was prosecuted with increasing energy, so that many are known at the present time.

The complex formulas of the alkaloids first discovered gave but poor encouragement to theoretical speculations regarding their constitution; nor was the relationship among them, as members of a group, recognized, owing to the dissimilarity of their reactions.

Berzelius explained their alkaline character by assuming that they contained ammonia in combination with an indifferent group, such as a hydrocarbon or an organic oxide.

Others held that their nitrogen was combined with oxygen, or that it was present in form of a compound resembling cyanogen.

The important publications of Wurtz and Hofmann (1848), which led to the discovery of a large number of important artificial organic bases, at the same time threw much light upon the general constitution of the alkaloids. It was recognized that the natural as well as the artificial bases consist of the ammonia group with partial or entire substitution of the hydrogen. On applying to them the reactions, which Hofmann has discovered, for distinguishing the four classes of substituted ammonias, it was soon discovered that all of them are tertiary amines.

Since then the researches on alkaloids have been greatly extended, and have led to the establishment of the following three facts:

1. The bases which are found in the same plants possess, in general, not only analogous empirical formulas, but also a similar chemical constitution. Many alkaloids found in one and the same plant have already been successfully converted one into the other. Thus, harmaline has been converted into harmine, morphine into codeine, narcotine into hydrocotarnine, hyoscyamine into atropine, morphine into pseudo-morphine, etc.

Other alkaloids, such as those from opium, or conium, or belladonna, or cinchona, or strychnos species, were found to yield, by simple reactions, the same products of decomposition; hence those belonging to the several groups must be supposed to be very closely related chemically.

2. The molecule of a large number of alkaloids may, by suitable agents, be split into two atom groups entirely differing in nature. One of these groups is always a base and contains all the nitrogen of the original alkaloid. The other is usually an acid, sometimes also a neutral body or a kind of sugar. In this way most of the oxygenated alkaloids may be split up, such as piperine, cocaine, solanine, achilleine, erythrophleine, aconitine, veratrine, atropine, hyoscyamine, narcotine, hydrastine.

In almost every one of these cases the constitution of *one* of the two components, viz., the acid, has been made out. In many cases it has been possible to identify this with an acid already well known; and in almost all the others the rational formula could be deduced from its reactions.

On the other hand, the basic product of decomposition has so far mostly remained ununderstood. In some cases (piperine, atropine, cocaine, papaverine, narcotine, hydrastine) good results have been obtained, but in others no satisfactory conclusion has so far been arrived at.

3. Viewed from a chemical standpoint, the alkaloids constitute a sharply defined class, inasmuch as they are all derived from one and the same base, viz., pyridine.

Anderson had obtained (in 1846) from the product of the dry distillation of bones (Dippel's animal oil) a certain series of homologous basic substances, the first member of which was C_5H_5N, and to which he gave the name *pyridine*.

Some years previously Runge had discovered another basic substance, *chinoline*, in coal tar. The relation of the latter to Anderson's pyridine was soon recognized. Chinoline is related to pyridine in the same manner as naphthalin is to benzol.

In 1885 Hoogewerff and Van Dorp discovered in coal tar another base, isomeric with chinoline, which was designated as *isochinoline*. This was found to be related to pyridine in the same manner as chinoline.

The further study of alkaloids showed that these vegetable bases were closely connected with the basic substances obtainable from Dippel's animal oil and coal tar, viz., pyridine, chinoline, and isochinoline.

Thus, Gerhardt obtained chinoline (in 1842) by heating strychnine, cinchonine, or quinine with caustic lime. Others obtained the same base subsequently by treating morphine, berberine, and brucine in a similar manner.

On the other hand, Huber (in 1864), Willm and Caventon (in 1873), Weidel (in 1873), Gerichten, Bernheimer, Goldschmidt, and Freund (in more recent time) succeeded in obtaining pyridine from acids (by heating with lime or simply heating) which themselves had been derived by oxidation from nicotine, cinchonine, quinine, berberine, sparteine, papaverine, narcotine, or their derivatives.

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* Die Pflanzenalkaloide und ihre chemische Konstitution. Von Dr. Aimé Pictet, Privatdozent an d. Universität Genf. In deutscher Bearbeitung von Dr. Richard Wolffenstein. 8vo. Berlin (Springer), 1891.

Piperidine, a decomposition product of piperine, was recognized in the same manner as a reduced pyridine. Pyridine and its homologous bases were also furnished by nicotine, coniine, brucine, strychnine, morphine, various cinchona alkaloids, certain derivatives of narcotine, and veratrine, when heated with zinc dust or soda lime. Finally, tropidine, a decomposition product of atropine, has been converted, by the action of bromine, into a dibrom-derivative of pyridine.

In this way it was recognized that many, and among them the most important, alkaloids yielded pyridine as a final product, and that they, for this reason, belong to the aromatic series or the benzol derivatives.

Some vegetable bases, however, are not derivatives of pyridine; for instance, betaine, muscarine, choline, and sinapine. Theine and theobromine likewise do not belong to the pyridine series. Their constitution is now perfectly understood: they belong to the derivatives of uric acid.

Finally, there are a number of vegetable bases, of which it is not known whether they belong to the pyridine series or not. For this reason it is not correct to say that all vegetable bases are derivatives of pyridine. It is preferable to adopt the proposal of Koenigs to make a distinction between *vegetable bases* and *alkaloids*, using the latter term for the large number of compounds belonging to the pyridine series. If this is done some substances heretofore classed among the alkaloids (such as theine, sinapine) must be excluded from this class.

While the study of the natural vegetable bases and alkaloids was carried on with energy, the nature of the pyridine bases occurring in animal oil and in coal tar was likewise made the object of various researches. Many new derivatives were discovered, their constitution and relationship to others cleared up, and many of them prepared by synthesis. Thus there gradually was found or formed a large number of compounds, derived from the pyridine nucleus, forming a class by itself alongside of the two large classes of bodies belonging respectively to the fatty [or "marsh gas"] and the aromatic [or "benzol"] series.

Among these synthetically prepared bodies a considerable number were found to be identical with certain products obtained by the decomposition of natural vegetable alkaloids. Others, again, showed remarkable similarities, either in their properties or in their reactions, with the natural bases obtained from plants.

Hence it is no longer possible to separate these two kinds of bases, the natural and the artificial. It is best to comprise them both under the name *alkaloids*. If it is desired, they may still be distinguished as *natural* or *artificial*, although this distinction is itself an artificial one and will eventually have to be abandoned. Two natural alkaloids have already been obtained artificially; others will undoubtedly be so obtained in a short time, and their number will constantly increase, so that we shall eventually know of each alkaloid which place it has to occupy in the system of the pyridine derivatives. . . .

[The following is taken from the introduction to the second part of the same work:]

The properties which induce us to comprise the vegetable alkaloids in *one* class are of a purely chemical nature; but this classification holds also good [in most cases] botanically, since the bases found in one and the same or allied plants are closely related chemically.

It is rare that the same alkaloid occurs in more than one family or order of plants. Only berberine and buxine have, so far, been found in various plants not related at all botanically.

Many orders of plants yield no alkaloids at all; for instance, those of the Compositæ and Labiatæ. [As to Compositæ, this statement is perhaps no longer true.—*Ed. Am. Drugg.*] Only colchicine and the veratrum bases are found among monocotyledonous plants. All other alkaloids occur only in dicotyledons.

The natural alkaloids were formerly divided into those which are liquid, may be distilled unchanged, and contain no oxygen, viz., coniine, nicotine, and sparteine; and those which contain oxygen, are usually crystallizable, and are decomposed by distillation.

This division, however, is not correct, since there are some (as yet little known) alkaloids, such as conessine, aribine, hymenodictine, which are solid at ordinary temperature and contain no oxygen; others again—as, for instance, the bases existing in granate root bark—are liquid and contain oxygen.

Some oxygenated alkaloids may be sublimed without decomposition, viz., atropine, hyoscyamine, cinchonine, harmine, rhœadine, and cytisine.

The natural alkaloids have an alkaline reaction upon litmus paper and possess a more or less bitter taste. They are mostly insoluble or difficultly soluble in water, more or less soluble in ether, easily soluble in alcohol. Nearly all (excepting only a few of the opium bases) are insoluble in alkalies.

Most of them turn the ray of polarized light. Optically inactive are: piperine, atropine, berberine, sanguinarine, delphinine, paricine, and three opium bases: narceine, cryptopine, and hydrocotarnine.

Nearly all active alkaloids turn the polarized ray to the left. Only coniine, narcotine, pilocarpine, quebrachine, and some cinchona bases turn it to the right.

In conformity with their basic properties, alkaloids are rarely found free in nature; they generally occur as salts, combined with various acids, such as malic, citric, lactic, tannic, etc. Some alkaloids, however, are combined with peculiar organic acids not otherwise or but rarely elsewhere occurring: thus, for instance, the alkaloids of opium [or some of them, at least] with meconic acid; those of cinchona with kinic acid; those of aconite with aconitic acid; those of veratrum with veratric acid; jervine, chelidonine, and sanguinarine with chelidonic acid.

Venus' Fly Trap.

A CURIOUS account of the "Venus' fly trap" was laid before the Biological Section of the American Association for the Advancement of Science, at its recent meeting, by Professor J. M. Macfarlane, of Edinburgh, who also gave an illustrated lecture on the hybridization of plants. Concerning the "fly trap," he proved by specimens at hand that two touches were necessary to make the leaf close up, but that it made no difference whether one of the six sensitive hairs was twice touched, or two of them each touched but once. The protoplasm of the leaf cells retained sharp recollection of the first touch for fifteen seconds, which was weakened during the next fifteen, and was wholly gone in about a minute. This exactly agrees with the "latent period" of muscular contraction in animals, though longer as to period. He showed that every part of the leaf blade is sensitive, closing after two snips, and that, if the first snip is very strong, closure may occur at the second, even after the lapse of two minutes. A strong jet of water will produce sudden closure. The action of chemical and electrical stimuli on these leaf cells is identical in behavior with that on the nerve muscle cells of the lower animals. This discussion was made particularly interesting by the presence of a beautiful array of plants from the public botanical garden, loaned for the purpose of demonstration.

Plaster of Paris Formulas.

1. *To Make Plaster Set Hard.*—Mix best plaster of Paris with about 10 per cent—more or less, according to effect ascertained by preliminary experiment—of very finely powdered marble (calcium carbonate). Or add to it about 6 per cent of powdered alum, or about the same amount of ammonium chloride, before mixing it with water.

2. *To Make Plaster Set Slower.*—Mix it with 2 to 4 per cent of powdered althæa root before adding the water. This not only retards the hardening of the plaster, but also enables it to be cut, filed, sawed, and turned.

An addition of 8 per cent of althæa powder retards the complete setting of the plaster for about one hour, so that the mass can be used for any purpose where it is to remain plastic during at least a portion of that time.

Detection of Citric Acid in Wine.

Dr. A. Klinger and Dr. A. Bujard have found that the method hitherto employed for detecting citric acid in wine is liable to lead to error, since it does not guard against mistaking malic for citric acid. They propose, instead of it, the following safer method:

A considerable quantity (say 250 C.c.) of the wine [or other beverage] suspected to contain citric acid is evaporated to about one-third of its volume, then mixed with potassium acetate, strongly acidulated with acetic acid, and mixed with twice its volume of strong alcohol, so as to cause the separation of the tartaric acid (as potassium bitartrate). After about twenty-four hours the mixture is filtered and the residue washed with a few cubic centimeters of dilute alcohol, in order to redissolve any calcium citrate which may have been separated at the same time. The filtrate is now precipitated with subacetate of lead solution, the precipitate washed with dilute alcohol and then decomposed in the usual manner with hydrogen sulphide.

The filtrate separated from the lead sulphide is evaporated to a rather concentrated solution, mixed with very dilute milk of lime to alkaline reaction, and after a few hours filtered, the filter retaining any phosphoric acid and still remaining traces of tartaric acid as calcium salts. The filtrate is acidulated with a little acetic acid, then evaporated to dryness, and the residue extracted with hot water mixed with a little hydrochloric acid. Some chloride of ammonium is then added, the liquid faintly supersaturated with ammonia and boiled for a considerable time. If a precipitate is now produced, it can only be calcium citrate, since calcium malate is not precipitated by boiling in presence of ammonium chloride. —*Zeitsch. f. angew. Chem.*

Identity Reaction of Phenacetin.

W. Autenrieth and O. Hinsberg have recently published a paper on phenacetin and certain of its derivatives in the *Archiv d. Pharmacie*, volume ccxxix., page 456, in which they first communicate a new identity reaction of the substance, and afterwards give the results of their investigations into the nature of the product of this reaction and into its constitution.

Identity Reaction for Phenacetin.—Upon 1 part of finely powdered phenacetin pour 2 parts of nitric acid containing 10 to 12 per cent of HNO_3 [specific gravity about 1.075], and heat for a short time to boiling. The liquid will assume a yellow to orange color, and the phenacetin, which had at first remained colorless, will at the same time (so far as it is not dissolved) be converted into a nitro compound of an intensely yellow color. When the liquid cools, a further crop of needles of the yellow (or brownish-red) compound crystallizes out.

Antifebrin and antipyrine remain unaffected when treated in this manner.

If concentrated nitric acid is used, however, antifebrin is colored yellowish-red and antipyrine yields a red solution.

The melting point of the characteristic yellow derivative of phenacetin, which was subsequently recognized as *mononitrophenacetin*, or $C_6H_3.OC_2H_5(4).NO_2(2).NHCO\text{-}CH_3(1)$, is at about 103° C.

Preparation of Hydrogen Peroxide.

A. Bourgougnon states, in the *Jour. Amer. Chem. Soc.*, that he has made hydrogen peroxide, as long ago as 1878, on a manufacturing scale by the following process:

Barium dioxide is first hydrated, being left for several hours in contact with water in an earthen vessel, and repeatedly stirred until it has been converted into a homogeneous, white milk. It is then gradually added to hydrofluoric acid, kept constantly cool, the barium hydrate being thus converted into barium fluoride. After the precipitate has been deposited, the supernatant but still acid liquid is carefully neutralized with barium hydrate (baryta), rapidly filtered, and then slightly supersaturated with sulphuric acid to separate the remainder of the barium as sulphate. When this has settled, the solution of hydrogen peroxide is drawn off clear.

Preparation of Picric Acid.

Considerable improvements have been made in recent times in the manufacture of picric acid, the necessity of which was more particularly recognized when this substance had to be prepared in very large quantities for the modern explosives.

Among the most recent processes, embracing former improvements and adding new ones, is that of E. de Lom de Berg, of Brussels (Germ. Pat. 51603), which is as follows:

Crude phenol, that is, the distillate from coal tar, which contains mostly phenol, is added to a quantity of sulphuric acid capable of converting the whole of the phenol into phenol-sulphonic acid. The oily mixture is then poured into water, which dissolves the phenol-sulphonic acid, while the other compounds separate in the form of oil and are simply decanted off. The acid liquid is now treated with a quantity of nitric acid (or a mixture of a nitrate and sulphuric acid) sufficient to convert the phenol into trinitrophenol. During this operation any cresol which may still be present and have escaped separation is not oxidized by the nitric acid. The whole is now evaporated to a syrupy consistence, the syrup mixed with a little sulphuric acid to convert any cresol present into cresol-sulphonic acid. The mixture is then poured into water, whereby the cresol compound, which is easily soluble, is separated from the picric acid, the latter being difficultly soluble in water. The latter is then recrystallized from hot water.

Linamarin.

A. Jorissen and E. Hairs, of Leyde, have discovered (*Journ. Pharm. d'Anvers*) a new glucoside in flax (*Linum usitatissimum*), not in the seeds, but in the fully developed plant or in the plantlets a few days old. The new glucoside was named linamarin. It is different from amygdalin and laurocerasin, but has similar properties. It is the source of the hydrocyanic acid which is produced when the flax plant (and various other plants) are distilled with water.

Estimation of Chlorine in Presence of Bromine.

A well-known method of estimating chlorine and bromine at the same time, is to precipitate the mixture of the halogens as silver salts and to weigh these; then to convert the mixture into silver chloride by heating it in a current of chlorine gas. On weighing again, the amount of bromine expelled is easily calculated.

Ed. Nihoul has recently found that dry hydrochloric acid gas may be used in this method instead of chlorine. The silver salt (about 0.1 to 0.4 Gm.) is fused in a tube of hard glass and the gas passed for an hour.—After *Zeitschr. f. angew. Chem.*

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The Manufacture of artificial Coffee Beans has, it seems, reached a stage of such importance in the United States as to compel the attention of the revenue officers. This is no new movement, indeed. It is now more than thirty years since the late Dr. Lindley, the botanist, presented to the director of Kew Gardens, London, a selection of carefully moulded artificial beans intended for mixing with the genuine article. They were made of finely powdered chicory and were an excellent imitation. The ordinary American artificial bean is, however, composed of rye flour, glucose, and water, and is prepared to resemble in size and color a fairly good sample of roasted coffee bean. When mixed with the genuine beans these imitations acquire the aroma of coffee. It has been computed that twenty per cent of the beans sold in the United States are artificial. The spurious beans can be made at a cost of $30 per 1,000 pounds, which, mixed with fifty pounds of pure coffee, finds a ready sale. Coffee substitutes are also sold openly like butter substitutes—one firm making 10,000 pounds a week. The wholesale vender thus escapes the penalty of violating the adulteration laws, but the retailers who buy the substitute know what to do with it. In Germany an imperial decree has forbidden the sale of the machines for making the false berry. Until the prohibition they were largely advertised.

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EDITORIAL.

French Brandy.

Statistical reports (which we give after *Pharm. Zeit.*, No. 72) show that, during the year 1890, there were 3,576 distillers in France, who turned out 2,214,527 hectoliters (= 58,482,914 gallons) of alcohol. [One hectoliter, or hl., is 26.42 gallons.] Among the distillers there were 416 who made more than one-half of the above-mentioned quantity of alcohol, viz., 1,483,555 hl., out of beets and molasses. There were 1,017 distillers who made 38,799 hl. alcohol out of wine, and 1,037 who made 34,374 hl. from wine lees. Corn and potatoes yielded 648,255 hl., and other substances (fruit, etc.) 12,544 hl.

These figures in themselves show that the celebrated French cognacs or brandies owe their origin almost to anything rather than wine. The amount of 38,799 hl. of wine alcohol, which is produced by 1,017 distillers, is a ridiculously small amount, compared with the quantity of "cognac" annually consumed in France and exported, which amounts to between 800,000 and 1,000,000 hl. By far the largest amount of this is made from alcohol (high wines) derived from beets. The so-called "genuine cognac" sold in France usually contains perhaps less than 10 per cent of the true article.

Absolutely pure genuine cognac (fine champagne) costs up to 80 francs per liter. The ordinary medium grades of cognac contain not a trace of distillate from wine.

Syrupus or Sirupus?

The last German Pharmacopœia changed the spelling of the word *syrupus* to *sirupus*, thus putting an official stamp upon the latter spelling, which had been recommended or used previously by various writers or authorities, though not followed by the majority.

Some critics found fault with the change, as they considered the word to be of Greek origin, or at least did not deem its alleged derivation from the Arabic to be sufficiently authenticated. Others—for instance, Prof. Ed. Schaer, of Zurich (in *Pharm. Centralhalle*, Sept. 17th)—defend the spelling *sirupus*. It is maintained, and quite correctly, that—assuming the word to be of Arabic origin, viz., from *sharâb*—the first vowel of this word, which, when written in Arabic, is an *a*, is slurred, so as to sound more like an *e* or *i*. Now, there can be no doubt whatever that the word is from the Arabic *sharâb*, which means "drink," and also more particularly *wine*. When it was desired to express the idea of a *sweet* or *sugared* drink, the Arabs combined the word with others expressing this property. In medical works translated from the Arabic during the middle ages, the word *sharâb* was taken over under the forms *serapion* (Greek), serapium (Latin), sciruppus, siruppus, syruppus, syrupus, etc. The forms in which the word appears in the various modern languages into which it has passed—xarope, Spanish; xarope, Portuguese; sciroppo or siroppo, Italian; sirop, French; siropu, Roumanian; siroop, Dutch; sirop, Russian, etc.—show, nearly all of them, that the first vowel is and was a simple *i*. Even in modern Greek, where the word is spelled *syrûpi*, the *y* is pronounced like *i*. It is therefore argued (by Prof. Schaer and others) that *sirupus* is the preferable spelling. We agree with him in this, but believe that the spelling "syrup" has become too customary in English to be easily displaced

The Richardson Attack.

Everybody who reads the American papers will have seen the sensational articles which, under such headings as "Trade Swindles," "Is it a Fraud?" "Fooling the Public," or such like, have appeared so largely as editorial matter in many leading dailies. The writers referred to assume the position that if a customer asks for a particular medicine, the druggist has no right to recommend any other. Why not? The druggist is morally and legally competent to pronounce, to the best of his knowledge and belief, as to the properties and quality of his wares. It is not his province to decry, but he is free to state his opinion that one preparation is better fitted than another to fulfil a specified purpose. He is as well qualified to do this as is a tradesman of any other class. If, for instance, a person wishes to purchase a pair of good, serviceable walking boots, and asks for a certain make of which the vender does not approve, knowing that he has those which will serve his customer better, he has a perfect right to apprise him of this fact, and we question whether the salesman would not be morally culpable if he withheld this information. It is precisely so with the druggist. His education and training as an expert should be at the disposal of his patrons, and to order the closing of his mouth, so that a third party may profit by his silence, is utterly absurd.—*Canadian Pharm. Jour.*

◆

Illinois State Board of Pharmacy.—The following named persons were declared Licentiates in Pharmacy at the examination held in Chicago, August 18th and 19th, 1891:

Robert S. Armstrong, E. S. Bernard, Chas. Brunstrom, E. M. Brickey, John A. Butt, T. H. Dewitz, John M. Eaton, A. F. Kiessling, S. F. Luckenbach, O. T. Niethammer, C. B. Olds, Wm. Perlau, R. F. Roche, Jas. S. Wead, F. S. Wilson, of Chicago; Harry C. Loudenbeck, Marengo; and Geo. A. Woolsey, Rockford.

The following were declared Assistant Pharmacists:

Fred. Burnitt, H. M. Flint, Wm. D. Harris, H. B. Kemp, Julius Knaak, Wm. Von Lauken, O. V. Lawson, Alfred Mesnager, C. A. Schlytern, D. E. Shane, E. T. Walker, H. W. Wightman, Fred. Wolff, of Chicago; Geo. E. Long and Jas. M. Phalen, Harvard.

The New Russian Pharmacopœia (Ed. IV., 1891) has recently been issued. Compared with the preceding, it contains a smaller number of articles, 318 having been discarded, while only 100 new ones have been added. Among these we find Abstracta, Cascara Sagrada (Cortex Rhamni Purshianæ), etc. The total number of articles is 808.

Lilacin as a Mask for the Odor of Iodoform.—Lilacin, the new perfume, which is really a definite chemical substance—terpineol—existing in various essential oils, and which possesses the odor of lilacs in a pronounced degree is said to mask the odor of iodoform better than any other substance.—After *Therap. Monatsh.*

NEWS AND NOTES.

MICHIGAN.

THE well-known Woodward avenue drug firm of WIESINGER & FLUEGEL has dissolved. The business will be conducted at the old stand by Mr. Fluegel, and Mr. Wiesinger opens another store in the eastern part of the city.

MR. WILL. P. CLARK, the popular pharmacist of Alpena, who has been located in Lapeer for the last few months, has decided not to "go it alone," at least for the present, and has accepted a position in Knill's pharmacy in Port Huron.

A. E. CHANTLER & CO., druggists on Michigan avenue, have filed a chattel mortgage in favor of Wm. Johnston & Co. for $500, to secure their indebtedness to this amount.

MR. ERIC VON NOSTITZ, of Detroit, formerly one of James E. Davis & Co.'s most successful salesmen, will shortly open a pharmacy of his own on Beaubien street. Mr. von Nostitz has been connected with the firm of Williams, Davis, Brooks & Co. since their amalgamation. He has the best wishes of his numerous old-time customers throughout the State, and will doubtless prove as successful behind the counter as he has hitherto been on the road.

JOHNSON, NELSON & CO. contemplate making extensive additions to their laboratory, and it is not improbable that they will erect a new factory, as their present one is inadequate to meet the demands of their growing business. The growth of this young firm is something phenomenal, and it is in a large measure due to the "get there" abilities of Mr. Edwin H. Nelson. It is doubtful if there is another manufacturer of prominence in the country who is so universally popular with the trade in general as Mr. Nelson, and one of the main reasons for this popularity lies in the fact that for many years he was himself a retail druggist and thoroughly understands and sympathizes with the wants and desires of the retail trade. His present success is the result of his own unaided push and ability, and shows what may be accomplished by a druggist who has energy, a thorough knowledge of his profession, and a determination to overcome obstacles. His career is worthy of emulation by every pharmacist in the land.

The suit for $100,000 damages brought by the California Fig Syrup Company against a non-secret firm of Detroit promises to stir the animals up and afford the wise and prudent druggist a great deal of amusement. The retailer has double cause for rejoicing when his two enemies pause in their efforts to take the bread out of his mouth, and grapple in deadly combat, each striving to cut the other's throat. Sic 'em, Towser! sic 'em, Tige!

CANADA.

A MOST amusing incident has been brought to light in the Division Court recently. A Toronto druggist entered suit against a Toronto physician to recover $77 owing on a bill of drugs. The doctor had a little offset to this, in the shape of a bill for $100, part of which was for professional attendance, the balance for "*money due on prescriptions at 25 per cent discount on each.*" The physician claimed that there was an arrangement by which he was to work the members of a secret society to the mutual benefit of the doctor and the druggist. The druggist swore to the contrary, and the physician, unable to prove his case, had judgment given against him for $75. Shades of Solomon, king of Israel, and William Prince of Orange! can you keep quite cool and comfortable in the face of this? The despicable practice of assisting in the extortion of money from customers by a percentage arrangement with doctors is highly reprehensible, and no druggist with any sense of honor would countenance such a piece of brigandage; but when this is further aggravated by the prostitution of an order, professing friendship and brotherly love, to the plundering of one brother by another, and, what is worse, a conspiracy for so doing, it is high time to call the game.

In a certain Canadian town there has been a body of soldiers in camp for twelve days. During this time the regimental physicians have been kept busy prescribing Unguent. hydrargyri for a peculiar insect said to have been gathered from the blankets the men slept on. But this trouble has not confined itself to the men; the officers, with the exception of a couple of the older married men, were afflicted in the same way, and fully half the young fellows about town are buying the insecticide too. It would seem that the whole town had been under canvas from the looks of things.

BIBLIOGRAPHY.

TABLES FOR DOCTOR AND DRUGGIST. Comprising: 1. Table of Solubilities. 2. Table of Reactions and Incompatibilities. 3. Table of Doses and Uses of Medicines. 4. Table of Specific Gravities. 5. Table of Poisons and Antidotes. Compiled by ELI H. LONG, M.D., Professor of Materia Medica, Buffalo College of Pharmacy, etc. Detroit: Geo. D. Davis, 1891. Pp. 133; 8vo, muslin, $2.00.

The first table embraces eleven pages, and the table of reactions and incompatibilities nearly fifty-one. The latter is the most distinctive feature of the book, and is almost the first comprehensive effort in this direction available for physicians or pharmacists in this country. The table of doses and uses employs both the metric and conventional methods of weight and measure. It fills fifty-seven pages, and is remarkably complete. The posology must necessarily be approximative, especially in the equivalents of the two systems of measurement. The table of specific gravities includes all officinal and many unofficinal liquids. The poisons and their antidotes—twelve pages—is considerably more comprehensive than the pocket-book list upon which most physicians depend. Altogether, the work impresses one as the result of most careful and extensive research, and, considering the value of such information on occasions when time is precious and the original authorities absent, the professions for whom it has been compiled are greatly indebted to Dr. Long.

TWENTY-SEVENTH ANNUAL REPORT OF THE ALUMNI ASSOCIATION, ETC., PHILADELPHIA COLLEGE OF PHARMACY, 1890–1891. Pp. 266, 8vo.

This association easily leads all others of its character in the amount of work done under its auspices, and its annual report should be esteemed as among our most valuable contributions to pharmaceutical literature.

FLORIDA STATE PHARMACEUTICAL ASSOCIATION. Proceedings of the Fifth Annual Meeting, 1891. Pp. 77, 8vo.

This association has reason to be proud of the prosperity which it has attained and of the influence it evidently exerts upon the practice of pharmacy in its locality.

CONTRIBUTIONS FROM THE U. S. NATIONAL HERBARIUM. Vol. i., No. 4. List of Plants Collected by Dr. Edward Palmer in 1890 in Western Mexico and Arizona. 1. Alamos. 2. Arizona. By J. N. ROSE, Assistant Botanist. Washington, 1891. Pp. 91 to 127 and i. to vii., 8vo.

This interesting series of Government publications is by authority of the newly created Department of Agriculture, and is a most valuable contribution to economic botany. It is handsomely illustrated with lithographic plates, and should be found in every public and scientific library.

INFORMATION WANTED.

No. 2,548.—"**Dr. King's Royal Germetuer.**" Formula wanted.

No. 2549.—**Butter** [J. E.]. There are many works devoted to the chemistry of food and drink which treat of methods for testing butter. From a practical standpoint, the most useful one will be the volume of Proceedings of the Association of Official Agricultural Chemists for 1890, published by the Agricultural Department in Washington. We would also draw attention to the new and large work by A. J. Zune, "Traité général d'analyse des beurres naturels et artificiels," of which the first part is just out (published at Braine-l'Alleud, Belgium; price, 20 francs for the complete work).

American Druggist
AN ILLUSTRATED TRADE JOURNAL
VOL. XX. NO. 21. NEW YORK, NOVEMBER 1st, 1891. WHOLE NO. 219.

THE ENGLISH PEPPERMINT AND LAVENDER INDUSTRY.

A REPORTER of the *Chemist and Druggist* recently paid a visit to Mitcham and vicinity, and furnished a report from which we take the following:

Just before reaching Waddon (on the London-Brighton Railway) a whiff of a familiar odor invaded the compartment, and directed attention to an eighteenth-century country cottage, flanked by a large black shed, upon the tarred boards of which the sunlight played brilliantly, while within several stills were busy exhausting their fragrant charges. At the other side of the road our man espied numerous patches of lavender, evidently much damaged by frost, and of weed-strangled peppermint. These, we were informed, belonged to several small local cultivators. The principal object of our man's journey was to obtain ocular evidence of the state of the essential-oil crops; but as one or two distilling sheds—"factories" they scarcely deserve to be called—are established within a stone's throw of Waddon Station, and the prospective ramble through the fields was almost certain to lead us far from our starting point, it was decided to pay a preliminary visit to one of the distilling headquarters before "trekking" into the far-stretching russet and green-hued fields that lay before us, basking in the warm September sun, and almost imperceptibly blending with the steel-gray hills on the horizon. Waddon is not altogether a romantic spot. Around the station spreads a settlement of more or less pretentious villa residences—"partly in block, partly in detached pieces," to borrow a classic phrase from the market report—and behind the mock-ancient house-fronts the newly washed domestic linen of Waddonian villadom fluttered unabashed upon ropes stretching from black paling to black paling across the gardens *boîtes-à-tiroir* that form an indispensable appanage of these eligible residences.

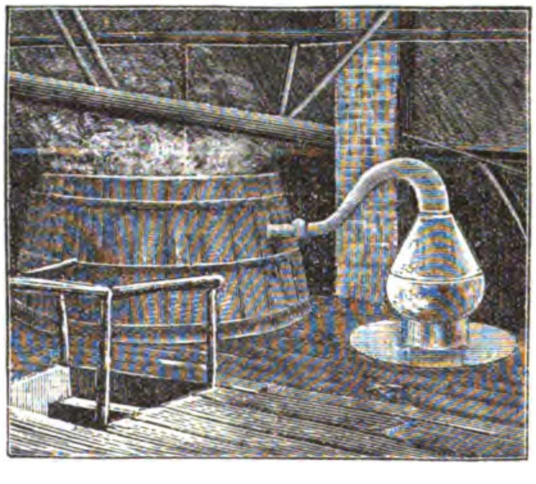
A Still-House.

THE FIRST STILL-HOUSE.

Turning sharply to the left, and ploughing our way along a rather moist cart rut, a large shed (not the one we had noticed from the carriage window) was reached. It was brick-built to a height of about five feet, the superstructure consisting of tarred boards. Here work was proceeding with the nearest approach to the nervous haste of the town factory of which the bucolic frame is capable.

Three large carts, laden with freshly cut peppermint herb, were drawn up alongside the shed, and while the horses peacefully munched the contents of their nose bags, a wooden-faced, stubble-bearded, and stolid-looking laborer, standing upon the load, seized the matfuls of herb one after another with the measured precision of an automaton and jerked them upon the upper floor of the shed, to be pounced upon by his equally stolid and automatic-looking mate.

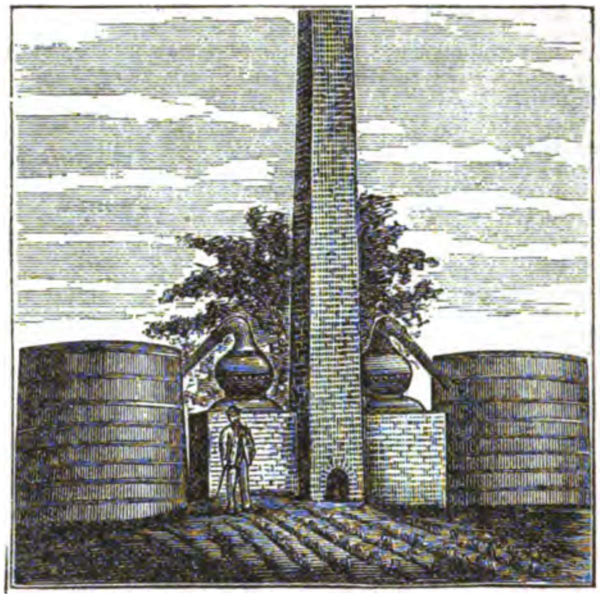
Before tracing the further progress of the mats we will cast a glance at the distilling apparatus. We said that the shed was a large building—of its kind. It is probably about 17 feet high, and is divided into two stories, at a height of about 8 feet from the ground, by a strong wooden flooring securely resting upon rafters. Access to the upper floor is obtained by two steep wooden ladders. The shed holds two complete stills, each one of which rests upon a solid brick-built furnace, the masonry of which reaches to the upper floor, and which is surmounted by a huge apple-shaped copper container, into which is packed the material for distillation. A massive copper still-head is affixed to the charged container; heat is applied from below; the water begins to boil, and carries away in its vapor the volatile oil from the herb. The oil laden vapor passes through an enormous worm, the coils of which measure from 200 to 300 feet from end to end. The worm is immersed in a large wooden vat, from 9 to 10 feet in height and between 40 and 50 feet in circumference, filled with cold water. There the vapor condenses and runs as water through the end of the worm, which projects from the lower part of the vat about 2½ feet from the ground, into a copper container. Oil and water separate in this container, the former floating on the surface, where it is collected, filtered (sometimes redistilled), and bottled for market. Such, in brief, is the process of distillation, which has been often described, but is none the worse for repetition here. It may be remarked, in passing, that the Mitcham stills are probably, taken all round, the largest used for the distillation of essential oils. They are very much larger than the apparatus in use at the flower farms of


A Still-Head and Condenser.

Southern France, and, we may add, more antiquated also.

THE SHRINKAGE OF THE HERB FIELDS.

Now let us return to our friend on the top of the van, who by this time is approaching the last mat of his load. All herbs grown in the Mitcham district with a view to distillation are brought to the still in mats of a coarse fibre, known as "bass" –the piassava of the produce trade. The cultivation of medicinal and fragrant plants is now practically limited to three varieties—peppermint, lavender, and chamomile. Here and there an odd corner is still planted with rosemary, spearmint, or pennyroyal; but the many roots, herbs, and flowers for which Surrey was renowned in former years —licorice, poppy-heads, belladonna, lovage, stramonium, roses, and what not—are now scarcely known there as articles of home growth. A mat of lavender weighs from 100 to 120 pounds, a mat of peppermint a little more. The mats which we saw unloaded were small ones, and a pair-horse van comfortably held forty-seven of them. In the field the herb is placed upon the mats flower heads inward, and the two ends of the mattings are simply skewered together with three bits of wood somewhat resembling clothes pegs. Our automatic friend number two, on the upper floor, who receives the mats from his mate on the cart, deftly withdraws the three skewers, throws them on a heap in a corner, and "chucks" the contents of the mat into the depths of the red copper container over the furnace, whence a voice is heard at intervals—"of course the proverbial still, small voice, which may naturally be looked for from such a quarter," opines a punster. Wrong, my worthy friend; the voice is a stentorian one, and its accents reveal a brogue of the richest emerald green. Presently the owner of the brogue appears in person, trampling upon the herb in the now fast-filling container, and reveals himself as a burly Irishman, sometimes answering to the name of Mike, and sometimes declining to answer, for his temper is uncertain. Mike is understood to be the "strongest man in Surrey," an assertion to which his herculean frame and the enormous biceps of his ochre-colored arms impart the stamp of truth. He is now rapidly emerging from the still, all the while stamping down the herb within with the whole weight of his enormous body, the task causing him to perspire and mutter freely. He is not a communicative Irishman, and stern veracity compels us to state that we found it utterly impossible to extract from him anything in the way of "comic" copy, of which every Irishman in print, from Thackeray to the melodramatists of the "Princess'," is expected to contribute his regulation quota. "That is young mint," said our companion, picking up a bunch of the herb, "but it's fine mint all the same, and not a bit of 'snuff' on it!"



Stills in Process of Erection.

Discharging.

THE STILL STARTED.

"I call that good mint, now," he added, throwing the bunch into the container. the last contribution to its charge. Mike thought it was some of the first year's growth, and then, without wasting words, proceeded to let the water into the container. When enough water has been admitted to fill the copper half-way up (a limit which the filler of the container ascertains by pulling out the pole placed in the centre of the container, around which he has trampled down the plant, and placing his arm in the aperture thus created), the massive copper condenser, or head, is let down by means of a crane and firmly clamped upon the still. The cooling vat has meanwhile been filled with water, the fire is kindled in the furnace below, and the distilling operation is started. Most of the stills in Mitcham are very old and combine in a high degree that excellence of material and thoroughness of workmanship which at one time were always synonymous with the term "English manufacture."

THE OLD SYSTEM.

But in the distilling operation itself no improvement appears to have been thought of since distilling first began in the county of Surrey. The main part of the process, it is true, is probably not susceptible of improvement, but one cannot help thinking, as one watches the process from the beginning to the end, that experience would have recalled some means of rendering the yield more uniform in quality, of exhausting the material more thoroughly, and of using to greater advantage the water of distillation, now allowed to run to waste at most of the still-houses. The distillation of a charge of peppermint herb—the average capacity of a container is somewhat above 20 cwt.—takes six hours from beginning to end, and in busy seasons some of the stills are kept going day and night, about 18 tons of fresh herb being thus treated from week's end to week's end. The still-man is required to exercise considerable skill in regulating the heat of the fire. His practised hand, by touching the copper head of the still, is able to discern the moment when the oil commences to "come over." Most of the oil is carried away during the first two hours of the operation; after that time very little is gained, and the quality of the first oil is perceptibly finer than that of the later distillate. The lavender plant appears to become exhausted more quickly than the peppermint herb, and the chamomile still quicker. As a proof of the lack of experimental enterprise which characterizes some of the distillers, it may be mentioned that, during our peregrinations through the district, we were told that one of the stills of a certain proprietor had for some seasons yielded a product distinctly inferior to that which it produced in former years. The deterioration dated from the time when a leakage in the still-head had been repaired, and it is surmised that it was caused by the use of an inferior kind of tin in the patched place. But no further trouble had been taken to ascertain beyond doubt and to remove the cause of the deterioration, the owner simply taking the untoward event as a kind of unalterable visitation, as who should fold his hands and cry out "Bismillah!" after the manner of the unspeakable Turk.

THE RECEIVER.

In a corner of the lower floor of the first still-house which we visited lay a big heap of the slaty coal with which the furnace is fed. A good-sized still, working at full pressure, requires half a ton of coal per day. A rude wooden bench, a few receivers—the large tin canisters, provided with a long tea-kettle spout, into which the worm pours out its charge of oil and water of condensation—and some odds and ends in the way of apparatus, complete the equipment of this portion of the building. Where the end of the worm projects from the cooling vat a wooden bin, covered with a wire-netting grating, is attached to the still. In this bin, which completely covers the aperture of the worm, the receiver is placed, and the wire-netting lid is secured with a padlock, tampering with the running oil being thereby rendered practically impossible.

The practice of thus encasing and securing the receiver is almost universal, and it should be remembered, in explanation of the fact, that most of the smaller cultivators have no stills of their own, but pay the still owners for the use of their apparatus. The bin, to which the cultivator can affix his own padlock, is thus the only guarantee that he has that he receives the full product of his herb. The fee for distilling is about 20*s.* per "charge" for a still of moderate size. In years of a fair average crop, a "charge" should yield about 8 pounds of oil. At the time of our visit to the first still-house, the proprietor of which grows little or no herb himself, but almost exclusively distils that of the smaller growers, one of the two stills was just being emptied of the exhausted herb, while in the other the process of "charging" with fresh herb was proceeding.

We will now again ascend the steep wooden ladder leading to the upper floor, and witness the work of

DISCHARGING THE STILL.

The regulation time allowed for the distilling operation has just come to an end. The huge still-head has been removed from the copper container, and clouds of pungent aromatic fumes, most unpleasantly assailing the nose and eyes of the unacclimatized visitor, ascend from the seething mass of exhausted herb below. The still is the smaller one of the two in the shed, yet it holds about 20 cwt. of raw, or rather cooked, material. Two men are busy at the work of emptying it. One works the crank of the windlass, from which runs a chain, passing through a hook in the ceiling, and fastened to the end of a heavy, six pronged fork manipulated by the second laborer. The latter gives the signal. Down go chain and fork. A load of the reeking herb is secured. Another sign, the chain tightens, and, by the united efforts of the two men, a huge forkful of herb is brought to the surface and thrown through a trapdoor into the yard below.

THE WASTE WATERS.

The exhausted herb is left to dry in the open, and used as manure. Behind the still-house is a huge stack of it, lavender and peppermint mixed, the sweetest-smelling manure heap one could wish to see. While the container is being emptied above, the water of distillation runs out below. It runs to waste. So does the water of condensation from the receiver when the layer of oil has been drawn off. Way down the back yard, past the perfumed dung heap of exhausted herb, you may trace the little stream of these yet oily waters. It has gradually hollowed out a channel through the light soil, and is lost in a miniature pool, on the top of which floats a shimmering bronze layer of volatile oil, carrying the imagination to the petroleum-charged waters of some Central Asian lake. "Are you sure that you could not obtain a larger percentage of oil from your herb than you do now? Could no use be found for the waters that have played so useful a part in the distillation?" we could not help asking. No, they thought not. In some places the water of condensation from the lavender stills is given to the workmen as a perquisite, and they sell it by the quart for a trifle, but, generally speaking, no serious effort is made to utilize the by-products.

The same stills are used, of course, for peppermint, lavender, or chamomile distillation. When a charge of mint follows one of lavender, the worm of the still is well washed with boiling water; but if lavender follows mint, and especially if chamomile has been the preceding charge, it is necessary to boil out the still with lime and water.

THE LADY OF THE LAVENDER.

Another still-house, containing four stills, in the same neighborhood, is owned by a lady, the daughter of a farmer, lately deceased, who carried on the business of an herb grower for many years in succession. The lady in question does not now cultivate any land, but she has many clients who send her their produce for distillation, and she also deals in essential oils, of which she is no mean judge. Woman's strength is in her weakness, and after a short interview with the excellent business woman who, from her modest old cottage in Mitcham, deals with the smartest firms in the essential-oil business in the city, and is enterprising enough to send her prettily beribboned bottles of lavender water and salts (and very good salts at that) to exhibitions from Kamtchatka to Peru, our man commenced his walk through the fields with a deepened conviction that at the very moment the sexes are placed upon a footing of perfect equality, equality will vanish forever and man become of no more account in the management of the world than the peliosaurus. With a meekly triumphant smile the good Mitcham lady unrolled a handsome scroll of paper setting forth that her essential oils and salts had been awarded a gold medal at the Grand International Exhibition of Yucatan, and handed it for inspection to her visitors. Our guide, who is himself in the essential-oil trade, but had not exhibited in Yucatan, and had no more thought of competing at the World's Fair in the Fiji Islands (where the lady, with quiet confidence, announced her intention of exhibiting her oils next year) than of flying to the planet Venus, at once began to show signs of distress. He felt that the masculine dealers would have to look to their laurels, if they did not want to be outdistanced by their lady competitor. Accepting the proffered offering from her store of lavender water and salts, we departed with feelings of sincere admiration for the plucky lady who, for business enterprise and acuteness, can give points to most of her masculine competitors.

A LAVENDER FIELD.

Our way now took us along many fields of black mint, the principal variety grown in this neighborhood. It did not require a proficient herb grower to discern how poor the crop looked. The day of our visit was the first day of undiluted and uninterrupted sunshine that Wallington had enjoyed for many weeks. Most of the land was badly weeded, and in some places bare patches of soil proclaimed the ravages wrought by winter frosts. Acre upon acre was pointed out to us which had been converted from peppermint or lavender into potato or cabbage land, and scarcely any new herb fields had been laid out this season. Presently we halted at a large stretch of land, whence the sweet odor of lavender was wafted in bountiful waves. Passing through a gate, we found ourselves in a wide field, covering, may be, some 50 or 60 acres. The field itself was completely treeless—no shade is wanted on herb fields—but it was sheltered on the east by a small wood, while its other sides were bounded by single rows of tall trees. A road divided the place in two, the half lying to our right hand being partly devoted to market produce, the other being entirely under herb. First there was a long stretch of "white mint," a comparatively rare sight in this part of the district. There is no botanical difference between the white and the black mint, and there are probably not half a dozen men living who could accurately distinguish by color, taste, or smell the oil of the white mint from that of the black, but, for all that, white Mitcham mint realizes a considerably higher price than black, and is accounted the finest variety of peppermint oil extant. The plants are distinguished easily enough. The leaf of the black mint is of a very dark green, and the flowers, as the herb stands in the field, are scarcely perceptible.

[ORIGINAL COMMUNICATION.]

COCAINE SOLUTIONS.

BY W. A. PUCKNER, OF CHICAGO.

In reply to a query regarding the preparation of percentage solution of cocaines, the American Druggist, vol. xix., p. 60, calls attention to the fact that to make a definite volume of such a solution the specific gravity of the solution, or, what is the same, the volume which a given weight of the salt will occupy in its aqueous solution—sometimes called "solution volume"—must be known. It is suggested, however, to prepare an approximate quantity, preferably a little more than required, and to dispense from this.

Having had occasion to dispense rather large quantities of solutions of various strengths, I found this an inconvenient and far from economical plan, and have therefore determined the quantities of cocaine hydrochlorate necessary to make a definite volume of solutions ranging from 1 per cent to 10 per cent.

That the accuracy of the following table may be judged of, and to aid students, who often find calculations for percentage solutions difficult, I will briefly outline the method adopted by me.

A Squibb's specific-gravity bottle, adjusted for 25 Gm. of water at 22° C., showed that the same volume of a solution containing 4 per cent of anhydrous cocaine hydrochlorate weighed 25.2311 Gm. This being a 4-per-cent solution, it must therefore consist of cocaine 1.0092 and water 24.2221 Gm. or (1 Gm. water at 22° C. measuring 1.0025 C.c.) 24.2825 C.c. Twenty-five Gm. of water at 22° C. will measure (25 × 1.0025 =) 25.0625 C.c.; 25.0625 — 24.2825 = 0.780 C.c, the volume occupied by 1.009 Gm. of the salt. If 1.009 Gm. measure 0.780 C.c., then 1 Gm. in an aqueous solution at 22° C. will occupy the volume of 0.773 C.c. To ascertain whether, as in some salts, the concentration would materially affect the "solution volume," a duplicate experiment was made with a 10-per-cent solution. The factor found was 0.771. In the following the mean value 0.772 was therefore used.

One hundred Gm. of a 4-per-cent solution of course consists of 4 Gm. of cocaine and 96 Gm. of water. Ninety-six Gm. at 22° C. = 96.24 C.c., and 4 Gm. × 0.772 = 3.088 C.c. Thus 100 Gm. will measure 96.240 C.c. + 3.088 C.c. = 99.328 C.c.

To make 100 C.c:

99.328 C.c. : 4 Gm. = 100 C.c. : x = 4 0227 Gm. cocaine.
99.328 C.c. : 96 Gm. = 100 C.c. : x = 96.648 Gm. water.

To make 1 fluidounce:

100 C.c. : 4.027 Gm. = 29.573 C.c. : x = 1.1909 gr. × 15.432 = 18.377 gr.
100 C.c. : 96.648 Gm. = 29.573 C.c. : x = 28.5807 × 15.432 = 441.046 gr.

In using this table, it will usually be found more convenient to weigh the cocaine and add enough water to make the desired volume.

Per cent.	For 1 fluidounce use		For 100 C.c. use	
	Cocaine hydrochlorate.	Water.	Cocaine hydrochlorate.	Water.
	Grains.	Grains.	Grammes.	Grammes.
1	4½	451¾	0.999	98.981
2	9	448	2.004	98.207
3	13¾	444½	3.013	97.432
4	18¼	441	4.027	96.648
5	23	437½	5.045	95.886
6	27¾	434	6.069	95.077
7	32¼	430½	7.097	94.286
8	37	436½	8.129	93.490
9	42	423	9.167	92.692
10	46½	419½	10.221	91.887

◆

Promoting the Absorption of Iron.—Essential oil of thyme made into a pill with soap and althæa is reported by Dr. Gros to aid the digestion of iron in anæmia and chlorosis. The daily dose is 2 minims divided into 3 pills, one to be taken after each meal.—*Chem. and Drugg.*

Alkaloidal Valuation of the Tinctures and Fluid Extracts of Nux Vomica as Found on the Market.*

BY FRANK J. PECK, PH.C.

The total alkaloids in each sample were estimated by two different methods, viz.: The gravimetric method of Dunstan and Short (*Ph. Jour. and Trans.*, 1883, vol. xiv., p. 292), and by the volumetric method with Mayer's reagent The results show a decided variation in the strength of both fluid extracts and tinctures, from which we take the two extremes: tinctures, 0.146 per cent to 0.413 per cent; fluid extracts, 1.06 per cent to 1.90 per cent, while the accepted standard for tincture of nux vomica is 0.315 per cent, and for fluid extract of nux vomica 1.57 per cent.

The volumetric method compares very favorably with the gravimetric method, the greatest difference between the two methods being only 0.004 Gm. for the tinctures and 0.007 Gm. for the fluid extracts.

Limit of Recovery of Atropine from Belladonna.*

BY ARTHUR W. ADAMS, PH.C.

The method used was that of Dunstan and Ransom (1885, *Ph. Jour. and Trans.* [3], 16, 237). Belladonna leaves were used in these experiments. The leaves were first estimated to find the amount of alkaloid that could be obtained from them; a definite quantity of alkaloid was then added to the leaves and the alkaloid again estimated, when it was found that the atropine added had sustained a loss of 36 per cent. It was found that the chloroform used to free the original acidulated solution from fat, chlorophyll, etc., contained a large amount of alkaloid. This was then treated according to Dr. Squibb's method, by washing with acidulated water, this solution rendered alkaline and washed with chloroform. By this means 68 per cent of the alkaloid was recovered. From these results the conclusion may be drawn that only 68 per cent of the atropine in belladonna leaves may be separated by Dr. Squibb's method, and 53 per cent by Dunstan and Ransom's method. Doubtless the same would be true of the root.

Chemical Laboratory of the University of Michigan.

Cinchona Assay of Total Alkaloids in Commercial Samples.*

BY WILLIAM F. ASHLEY, PH.C.

The method of assay used was that given in Lyons' "Manual of Assaying," but as there is some loss of Prollius' fluid by evaporation, it would be better to add Prollius' fluid to a definite weight, and, after standing the required time, weigh, and replace the loss in weight by the addition of more Prollius' fluid.

Twenty-five samples were assayed, the result of which may be briefly stated as follows: Two samples of red bark (whole), 3.56 per cent and 5.31 per cent respectively. Twelve samples of red bark (ground), minimum 0.73 per cent, maximum 7.38 per cent; average, 3.17 per cent. One sample of yellow bark (whole), 4.88 per cent. Nine samples of yellow bark (ground), minimum 1.73 per cent, maximum 5.10 per cent; average, 3.31 per cent. One pale bark, 1.31 per cent. The U. S. Ph. standard of 3 per cent is not far below the average of current bark, but barks yielding a much higher per cent of total alkaloid than the pharmacopœial standard may be obtained by paying for them, as the price was invariably in proportion to the yield of total alkaloids.

Valuation of Mercurial Ointment.*

BY HARRY L. BIRD, PH.C.

The estimations were made by Dechan and Mabree's method (*Ph. Jour. and Trans.*, vol. xv., 230), and Herold Senior's method (*Ph. Jour. and Trans.*, vol. xv., 362). Both methods were tried on samples of known composition, and both found to give accurate results.

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* Abstract of a thesis presented to the School of Pharmacy, University of Michigan.

Fifteen samples obtained from retail stores were analyzed, with the following results. The percentage given is for metallic mercury:

No. 1.	45.00%.	No. 6.	47.22%.	No. 11.	40.60%.
" 2.	47.62%.	" 7.	43.90%.	" 12.	34 90%.
" 3.	42.18%.	" 8.	30.90%.	" 13.	39.46%.
" 4.	46.50%.	" 9.	45.16%.	" 14.	12.00%.
" 5.	13.18%.	" 10.	48.10%.	" 15.	43.00%.

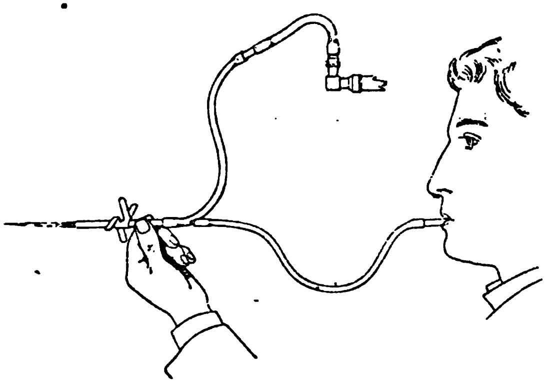
Only three of the samples contained traces of oxide. Samples known to be over three years old did not contain a trace of oxide, from which Mr. Bird infers that if oxides are present in mercurial ointments it must be due to the method of manufacture rather than to the age of the ointment.

It will be observed that all of the samples analyzed are below the pharmacopœial standard.

Mr. Bird recommends the following proposed method for the practical estimation of the metallic mercury in mercurial ointment: Make a saturated solution of nitrate of soda or sulphate of magnesia, and boil the ointment with this solution in a medium-sized test tube till the mercury has all settled to the bottom of the tube and the fat has risen to the top. Place a small splinter of wood in the fatty layer and allow to cool; when the fat has hardened, warm the tube slightly with the hand or over a gas flame till the mass becomes loosened, when it may be removed by means of the splinter. Decant the supernatant liquid, and wash the mercury with water, boil with a little strong hydrochloric acid to form the mercury into a globule, then wash again, dry, and weigh.

IMPROVED BLOWPIPE.

The time-honored Black's blowpipe, as usually supplied to chemical students, and generally employed in the chemical laboratory for the purpose of light work and performing the various dry tests for detecting and confirming the metals, proved itself long since anything but convenient. In the first place, owing to its rigidity it is impossible for the operator to move his head without altering the flame, and, moreover, owing to the shortness of the stem it often necessitates a stooping position. The blowpipe by Mr. C. G. Moor has been specially designed for the purpose of overcoming some of these difficulties.



For dentists, jewellers, and opticians, for hard soldering and brazing, this blowpipe will be found very useful; also for soft soldering as generally practised.

One of the chief advantages which this blowpipe possesses is the facility with which it can be brought to bear upon any point, at any angle. The control of the direction and the size of the flame can be regulated simultaneously, with the same hand It is very simple in construction, well made, and therefore does not readily get out of order. The regulation of the flame is simplicity itself; while the india-rubber tubes which connect the blowpipe with the mouthpiece (which is made of glass) and with the gas supply give great freedom in use, and can readily be attached to an ordinary gas bracket.

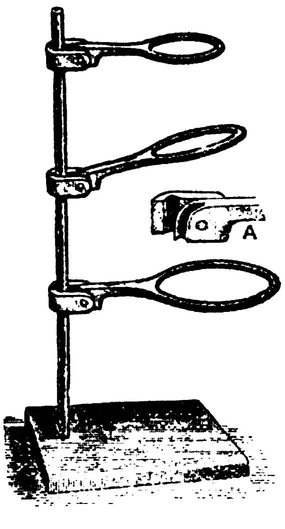
On this account the blowpipe is very handy for teachers and the like who have to travel and have to take part of their apparatus with them.

As an adjunct to the laboratory this blowpipe is most convenient. The inner and outer flame is very well defined, and, although a small blowpipe, it is, nevertheless, a powerful one for its size, the heat being sufficient to melt copper and silver; or, if hydrogen be employed instead of coal gas, even fine platinum wire can be melted.

For glass-blowing purposes, and in all cases where flames of varying size are required, the flame can be regulated to a nicety, while, although a good and reliable blowpipe, the price is sufficiently low to bring it within the reach of all.—*Scient. Am. Suppl.*

A NEW RETORT STAND.

This is a device of C. G. Moor, of London. The top and bottom rings are shown *in situ* ready for use, the middle one showing the simple movement necessary to release the ring, when it may be readily shifted to the required height. The small figure A shows the action of the clasp, and it is evident that one great advantage over the old system is that the heavier the weight to be sustained the greater becomes the grip upon the upright.—*Scient. Am. Suppl.*



Cannabinine.

Mr. H. F. Smith reports (in *Amer. Journ. Pharm.*, 1891, 386) that he has separated an alkaloid from cannabis indica. This is described as a body of a varnish like consistence, having a peculiar odor resembling that of coniine and resembling a body previously extracted from the plant by Siebold and Bradbury (also called cannabinine). One kilo of Indian hemp yielded only 75 Mgm. of the base.

Commercial Hyoscine and Scopolamine.

About eighteen months since Prof. Ernst Schmidt reported that a crystalline substance separated from the root of *Scopolia atropoides*, and supposed to be crystallized hyoscine, was a hitherto unrecognized alkaloid, and that it appeared to be present in some commercial samples of hyoscine salts. At the recent meeting of German Naturalists and Physicians he gave some further particulars of this alkaloid, which has been provisionally named "scopolamine" (*Apoth.-Zeit.*, September 26th, p. 522). The hydrobromide occurs in beautiful glassy crystals, 3 Cm. long and 2 Cm. broad, and from the results of analyses of the hydrobromide, hydrochloride, hydriodide, sulphate, or highly characteristic gold salt, as well as of the free base, the composition of scopolamine is represented by the formula $C_{17}H_{21}NO_4$. According to this it would contain two atoms of oxygen in the molecule more than apoatropine, and the atropamine recently discovered by Dr. Hesse. Scopolamine appears to contain a hydroxyl group, as it yields a monoacetyl derivative; towards nitrous acid it behaves as a tertiary base By boiling with baryta water it is split up into atropic acid and a crystalline base, melting at 110°C., which has a composition represented by the formula $C_8H_8O_2$.

Prof. Schmidt made the important announcement that the ***hyoscinum hodrobromicum*** at present met with in commerce consists essentially of ***scopolamine hydrobromide*** Scopolamine is said to have also been obtained in small quantity from belladonna root and from stramonium seeds. Further, the mydriatic basic substance separated by Prof. Schmidt from one sample of *Duboisia myoporoides* consisted essentially of scopolamine, but that obtained from a sample of the leaves from another source was essentially hyoscyamine.—*Pharm. Journ.*

Homœopathic Pharmacy.

THE editor of the *New England Medical Gazette*, a homœopathic periodical, writes as follows upon a phase of pharmacy little known by the majority of our readers, but worthy at present of some attention:

There exist to-day in many parts of the country colleges of pharmacy where everything pertaining to the knowledge, identification, collection, preservation of medicines, their preparation, combination, etc., is taught. These colleges have a definite course of instruction, and give a degree signifying that the possessor has a practical knowledge of certain scientific matters. In many if not all the States registration and license are requisites to those who would engage in the business of the pharmacist. It is, therefore, a recognized fact that pharmacy and the practice of medicine are distinct arts. A capable pharmacist is not necessarily a good prescriber; neither is a successful practitioner of medicine necessarily fitted to instruct a pharmacist in matters pertaining especially to the latter's craft.

Homœopathic pharmacy has always been considered a simple affair, possibly because the methods and rules formulated by Hahnemann are given in a few paragraphs. In pharmacy, as in medicine, Hahnemann made some startling innovations, although there are probably but few homœopathists who are familiar with Hahnemann's own writings on matters pharmaceutical. The preparation of a pure and reliable tincture, for instance, can be no easier to the homœopathic than to any other pharmacist. As a matter of fact it is a more complicated process. Growing out of the mistaken idea of the simplicity of homœopathic pharmacy, and an absence of unity on the part of pharmacists, are certain misconceptions and disagreements. It is not here claimed that pharmacy should remain where Hahnemann left it, for improvements have been made since his day (see "The Pharmacy of Triturations," *New England Medical Gazette*, September, 1891). But it is claimed that for the sake of positive knowledge, for the sake of the accuracy, consistency, and precision which are necessary to the further growth of homœopathy, there should be a thorough reconstruction of homœopathic pharmacy. At the present time an International Pharmacopœia is, unfortunately, probably out of the question. A National Pharmacopœia, however, is a necessity and, fortunately, a possibility. As to the necessity, it need only be said that many so-called "tinctures" vary greatly in strength in different parts of the United States; that an IX dilution represents a certain proportion of drug in one city and a different proportion in another; in short, that the homœopathic pharmacists of the country have no uniform standards, no authoritative rule for guidance. A committee of the American Institute of Homœopathy have been working hard on the preparation of a pharmacopœia for national use, and have nearly completed their work, when something in the nature of a halt is called as follows:

The American Institute of Homœopathy at its recent session at Atlantic City, after a limited discussion, passed the following resolution:

"*Resolved*, That the Committee on Pharmacopœia be requested to reconsider their action by which the soluble elements of plants are made the basis of attenuations."

Unfortunately, this was passed at a time when none of the editors of the new pharmacopœia were present. An analysis of the vote itself will show that the question was not understood by the members present, as the Pharmacopœia Committee have never for an instant contemplated making "the soluble elements of plants the basis of attenuations." The discussion brought out the fact that members of the Institute were entirely unfamiliar with the pharmacopœial writings of Hahnemann, and also with the pharmacopœias which have been published since his time. It seems to be the general impression that Hahnemann took the tincture as the unit of attenuation, and that this custom had been followed up to the present day, and that the Pharmacopœia Committee proposed to make a radical change which might prove a sort of inconvenience as well as of danger.

The facts are that in the case of *dry* medicinal substances Hahnemann regarded the *drug itself* as the unit, and this has been the rule of all homœopathic pharmacopœias printed since his time, with the single exception of the "British"; and in this class of substances the committee propose to make no change.

In the case of *tinctures* made from fresh, green substances, Hahnemann regarded the *plant juice* as the unit. It will be seen that he never in any case accepted the tincture as the unit of strength in preparing attenuations.

Before discussing the unit of strength in attenuations it will be well to consider the standard of strength to be adopted for tinctures. The Pharmacopœia Committee, acting upon instructions of the Institute, have adopted the tincture-making process of the "British Homœopathic Pharmacopœia," simplified, however, so as to make it available for the average practitioner and pharmacist. In other words, the same *standard of strength* is obtained, viz., 10 per cent of the dry, crude drug, both in the case of tinctures made from dry, crude material and those made from the fresh, green plants and roots. The committee are very strong in their opinion, and are fully convinced that a large majority of the members of the Institute will agree with them, that the *dry, crude drug* is the *only reliable* standard of strength in the preparation of tinctures. It would seem conclusive when we consider, on the other hand, that we cannot well take the "active principle," as this is in most cases either uncertain or unknown, and the same objection must be raised to accepting the "soluble elements of plants," which the Institute seems to have been led to believe was the standard selected by the committee. The plant juice, or even the fresh, green plant, including the moisture, is also of uncertain strength, the quantity of moisture varying in different seasons and under different conditions. The acceptance of the dry, crude material as the standard of strength enables us to prepare tinctures of uniform strength, which is a matter of great importance. It should be clearly understood, however, that in taking the dry, crude material as the standard of strength, it does not imply its use in the preparation of tinctures; in fact, the fresh, green material is to be used whenever possible, and the plant moisture made use of as a part of the menstruum.

Having accepted the dry, crude drug as the *standard of strength for tinctures*, the committee have also made this the *unit of strength in attenuations*, and in this they have simply followed out Hahnemann's rule for a large class of preparations. They have simply made this rule uniform and applied it to all. In other words, the only variation from Hahnemann's rule has been in the case of tinctures made from *fresh, green material;* Hahnemann made this unit the plant juice, and the committee take the crude drug. As a result, with but a very few exceptions, all our tinctures having a uniform strength of 10 per cent will be also the first decimal attenuation. This fact, made prominent in the paper on "Pharmacy of Tinctures," by Dr. Lewis Sherman, but which was evidently not clearly understood, is what led to the discussion at the Institute and the vote in question.

Making the tincture the unit of strength renders it impossible to obtain uniformity of strength, for the reason that the first decimal attenuation of a mother tincture corresponds in medicinal strength with the second decimal attenuation of a trituration. For instance, the tincture of nux vomica represents one-tenth part crude drug. Now, if the IX dilution is made to represent one-tenth of the tincture, it follows that the IX dilution contains but $\frac{1}{100}$ crude drug, while the IX trituration will contain $\frac{1}{10}$. Therefore "Nux Vom. IX" may mean either one of two things, which is evidently unreasonable.

In England the conditions are somewhat different from those in this country. In 1870 the first edition of the "British Homœopathic Pharmacopœia," prepared under the direction of the British Homœopathic Society, was published, and this work has there been the accepted authority for both pharmacist and physician since that date. This Pharmacopœia has made the *tincture* the unit of strength in preparing attenuations. In the last edition of this most excellent work the desirability of a change in this rule is fully admitted [page 35], but we read that "after much deliberation" it has been deemed inadvisable "to make any such radical change." While such a change might seem radical in England, inasmuch as this rule has been universally adhered to in that country for the past fifteen years, we find the conditions entirely different in America, as none of the pharmacopœias published in this country has ever accepted the tincture as the unit of strength. In fact, all have uniformly made the *crude drug* or plant juice the unit, while each pharmacist has made his own selection of authority or formulated his own rules, most of them undoubtedly adhering to the old Hahnemannian methods. Hence there is a wide difference in strength of tinctures prepared in our different cities. It will be clearly seen, therefore, that a change which will lead to our making the *tincture the unit of strength in preparing attenuations* will be in itself a radical one to Americans. We are well aware of the fact that it has been the custom of many physicians and some pharmacists, Otis Clapp & Son among the number, to make the tincture the unit of strength in preparing attenuations, that is, to follow the British method; and we are pleased to state that no one is more urgent for a change in this particular than Dr. Clapp, who is one of the associate editors of the new Pharmacopœia.

Let us look at the facts as they exist. It is very essential to secure uniformity in the strength of our medicines, and to secure this it is absolutely necessary to establish a standard of strength for our tinctures, and the unit of strength in attenuations. In order to accomplish this, some physicians and pharmacists must change their rules of action. Any change may seem radical to those who are required to make it. Yet, at the price of any temporary inconvenience, such changes should be made as will secure an absolute standard of uniformity. The dangers of non-uniformity in the preparation of tinctures and low attenuations should not need pointing out to any thoughtful physician. On this ground alone, if on no other, it becomes the Institute of Homœopathy to co-operate with its Committee on Pharmacopœia to speedily establish this standard, and to lay no straw of hindrance in their pathway.

Gallate of Bismuth, or Dermatol.

UNDER the singular name of "dermatol," Dr. R. Heintz, a medical practitioner residing at Breslau, designates a chemical preparation which is said to be quite new, namely, the *basic gallate of bismuth*, and he recommends this compound as an antiseptic capable of being employed as a substitute for iodoform in the dressing of wounds and ulcers, etc. The basic gallate of bismuth, or dermatol, presents itself as a fine, absolutely inodorous powder of a saffron-yellow color. It is non-hygroscopic, and appears to be quite unaffected by exposure to light and to the air. As this compound is insoluble in ordinary liquids, it can only be employed as a powder. Besides its antiseptic properties, which are said by Dr. R. Heintz to be strong, he claims also for it a stimulant and astringent action, which makes it valuable in the treatment of wounds and ulcers, and tends to hasten their cicatrization. He states, moreover, that, "on account of its insolubility," poisoning by it is impossible; but sulphate of baryta, which is a perfectly insoluble powder, acts as a poison and has been used for killing rats, etc. Dermatol, we are assured, does not produce any local irritation whatever, and, according to the writer above named, it may be substituted for iodoform in all cases where the latter is indicated, and may actually be used internally, he says, in the dose of 30 grains per diem, in diseases of the digestive tract, especially in the profuse diarrhœa which is present in catarrhal and ulcerous affections of the intestines. That we have here a new and non-irritant powder, supposed to possess strong antiseptic powers and to possess astringent qualities, no one will deny; but that it will replace iodoform in all its indications is saying more than any practitioner will accept, though it may prove equal to the latter in the external treatment of ulcers, and prove applicable in certain cases, for instance in diarrhœa, where iodoform would not be prescribed. In this instance it would be calculated to replace the subnitrate of bismuth with advantage, as being more astringent and perhaps possessing greater antiseptic powers.—*Monthly Magazine.*

Raphides, the Cause of the Acridity of Certain Plants.

BY R. A. WEBER, PH.D.

AT the last meeting of the American Association for the Advancement of Science, Prof. W. R. Lazenby reported his studies on the occurrence of crystals in plants. In this report he expressed the opinion that the acridity of the Indian turnip was due to the presence of these crystals or raphides. This opinion was opposed by Prof. Burrill and other eminent botanists, who claimed that other plants, as the fuchsia, are not at all acrid, although they contain raphides as plentifully as the Indian turnip. Here the matter was allowed to rest.

The U. S. Dispensatory and other works on pharmacy ascribe the acridity of the Indian turnip (*Arum triphyllum* or *Arisæma triphylla*) to an acrid, extremely volatile principle insoluble in water and alcohol, but soluble in ether. Heating and drying the bulbs dissipate the volatile principle, and the acridity is destroyed.

At a recent meeting of the Ohio State Microscopical Society this subject was again brought up for discussion. It was thought by some that the raphides in the different plants might vary in chemical composition, and thus the difference in their action be accounted for. This question the writer volunteered to answer.

Accordingly four plants containing raphides were selected, two of which, the *Calla Cassia* and Indian turnip, were highly acrid, and two, the *Fuchsia* and *Tradescantia* or Wandering Jew, were perfectly bland to the taste.

A portion of each plant was crushed in a mortar, water or dilute alcohol was added, the mixture was stirred thoroughly and thrown upon a fine sieve. By repeated washing with water and decanting a sufficient amount of the crystals was obtained for examination. From the calla the crystals were readily secured by this means in a comparatively pure state. In the case of the Indian turnip the crystals were contaminated with starch, while the crystals from the fuchsia and tradescantia were embedded in an insoluble mucilage from which it was found impossible to separate them. The crystals were all found to be calcium oxalate.

Having determined the identity in chemical composition of the crystals, it was thought that there might be a difference of form of the crystals in the various plants, from the fact that calcium oxalate crystallizes both in the tetragonal and the monoclinic systems. A laborious microscopic examination, however, showed that this theory also had to be abandoned. The fuchsia and tradescantia contained bundles of raphides of the same form and equally as fine as those of the acrid plants. At this point in the investigation the writer was inclined to the opinion that the acridity of the Indian turnip and calla was due to the presence of an acrid principle.

Since the works on pharmacy claimed that the active principle of the Indian turnip was soluble in ether, the investigation was continued in this direction. A large stem of the calla was cut in slices, and the juice expressed by means of a tincture press. The expressed juice was limpid and filled with raphides. A portion of the juice was placed in a cylinder and violently shaken with an equal volume of ether. When the ether had separated a drop was placed upon the tongue. As soon as the effects of the ether had passed away, the same painful acridity was experienced as is produced when the plant itself is tasted. This experiment seemed to corroborate the assumption of an acrid principle soluble in ether. The supernatant ether, however, was slightly turbid in appearance, a fact which was at first ignored. Wishing to learn the cause of this turbidity, a drop of the ether was allowed to evaporate on a glass slide. Under the microscope the slide was found to be covered with a mass of raphides. A portion of the ether was run through a Munktell filter. The filtered ether was clear, entirely free from raphides, and had also lost every trace of its acridity.

The same operations were repeated upon the Indian turnip with exactly similar results.

These experiments show conclusively that the acridity of the Indian turnip and calla is due to the raphides of calcium oxalate only.

The question of the absence of acridity in the other two plants still remained to be settled. For this purpose some recent twigs and leaves of the fuchsia were subjected to pressure in a tincture press. The expressed juice was not limpid, but thick, mucilaginous, and ropy. Under the microscope the raphides seemed as plentiful as in the case of the two acrid plants. When diluted with water and shaken with ether, there was no visible turbidity in the supernatant ether; and when a drop of the ether was allowed to evaporate on a glass slide, only a few isolated crystals could be seen. From this it will be seen that in this case the raphides did not separate from the mucilaginous juice to be held in suspension in the ether. A great deal of time and labor was spent in endeavoring to separate the crystals completely from this insoluble mucilage, but without avail. With the tradescantia similar results were obtained.

From these experiments the absence of acridity in these two plants, in spite of the abundance of raphides, may readily be explained by the fact that the minute crystals are surrounded with and embedded in an insoluble mucilage, which prevents their free movement into the tongue and surface of the mouth when portions of the plants are tasted.

The reason why the Indian turnip loses its acridity on being heated can be explained by the production of starch paste from the abundance of starch present in the bulbs. This starch paste would evidently act in a manner similar to the insoluble mucilage of the other two plants.

So also it can readily be seen that when the bulbs of the Indian turnip have been dried the crystals can no longer separate from the hard mass which surrounds them, and consequently can exert no irritant action when the dried bulbs are placed against the tongue.

The Cubeb Market.

For about eight years the price of cubebs has been kept at a figure generally admitted to be unreasonably high, and ascribable only to the astuteness with which the article has been manipulated by various speculators. During the last few months, however, the market had commenced to find its level, and whereas at the opening of the year the so-called shrivelled but genuine berries, which by our druggists are preferred to the bold, "cultivated" variety, still stood at the enormous figure of about £17 per hundredweight, that variety was lately selling with some difficulty at £9 per hundredweight. By those who had followed the fluctuations of the cubeb market in former seasons the latter price was generally admitted to be still greatly out of proportion to the true value of the drug, as considered merely from a point of view of production and consumption. For many years prior to 1880, when asthma cigarettes—in the preparation of which cubebs form an important ingredient—were first heard of in America, cubebs fluctuated between 25*s.* and 75*s.* per hundredweight, a figure of 40*s.* to 45*s.* per hundredweight being generally considered the normal value of the drug, which was always obtainable plentifully at that price. If the collection of the wild fruit, or even the cultivation of the vine, had not been profitable in those years of low prices, we may be sure that there would have been a falling-off in the supply, for commercially the article is a comparatively small one, the area within which it is produced is limited, and the export trade from the Dutch Indies lies in a very few hands. Allowing, further, for the possibility of an increased consumption of the drug—though the asthma-cigarette scare has practically died out—it remains evident that a quotation of £9 per hundredweight is at least treble of what it should be, unless, indeed, the production has materially decreased, and that, so far as it is possible to judge, is certainly not the case. It is said that there has been a succession of unusually poor crops in Java, but of that we can only judge approximately by the import statistics of the various ports to which cubebs are shipped from that island, for until a few years ago the Dutch Indian official export statistics appeared to have included the drug among the minor articles not specially enumerated. Lately the drug has been specially mentioned in the Java export lists, with the result of establishing beyond doubt the fact that the shipments from the island have enormously increased, the exports for the year ending June 30th being given as 1,378 piculs (of 133⅓ pounds each) in 1890-91, against 1,353 piculs in 1889-90, and 883 piculs in 1888-89. It is certain that the extraordinary prices of the last few years have stimulated the cultivation of cubebs in Java, and the Dutch-Indian Government has done its best to assist in this increase of the propagation by distributing plants gratuitously to planters all over the island. Under these circumstances it is a matter of some surprise that during the last two or three weeks an active speculative movement should have manifested itself in the article in the central markets. Purchases of considerable importance have been made in the two principal European markets, London and Amsterdam, and there is some prospect that, for a time at any rate, quotations will again be in the ascendant. From Amsterdam it is reported that the bulk of the purchases there have been made by American houses at prices ranging from about £9 to £12 10*s.* per hundredweight, according to quality. It is asserted that about 100 bags of cubebs were lost in the fire which recently destroyed one of the principal New York drug warehouses; and if that be true, or even if the American speculators can induce the trade to believe that it is true, the cause of the advance would be explained. In so small an article as cubebs, 100 bags—or say about 7,000 pounds—is a very considerable factor. It would probably represent a fair proportion of the stock in America, which is the largest consumer of the drug, and is said to require about 80,000 pounds a year to meet an average demand. In London the stock is small. The September returns give it as 90 bags in the first hand, but this is probably below the mark, and there are many reasons for believing that the statistics from which this figure is taken are by no means invariably accurate. It is said that about ten days ago 70 bags of cubebs were bought up in this market, but it is added that this operation was independent of the American purchases reported from Amsterdam. Whatever may be the cause of the upward movement, it deserves attention that it has been initiated at the period when the bulk of the Java crop has usually been received in Europe, and when at least six months must elapse before the new crop is available. In Amsterdam the stock seems to be a rather considerable one. The increase in the demand for cubebs in the United States during the period 1879 to 1881, when the asthma-cigarette fashion was at its height, may be roughly estimated at about 30,000 pounds over the normal requirements of the country, which are about 80,000 pounds a year. The manner in which the speculative movement was "overdone" at that time is shown by the fact that in the beginning of 1881 no less than 737 bales of cubebs were returned to London from New York in order to lighten the overstocked market in the latter centre. The imports of the cubebs in Holland have been subject to enormous fluctuations of late. Official statistics (upon which too much reliance should not be placed) give them as 270 bales (of about 70 pounds) in 1885, 700 bales in 1887, 1,095 bales in 1888, and 662 bales in 1890.—*Chem. and Drugg.*, October 3d, 1891.

Cologne Spirits.

(From the unofficial Formulary of the German Pharmaceutical Society.)

Oil of Bergamot	20 parts.
" Lemon	20 "
" Musk (2 per cent)	5 "
" Neroli	2 "
" Cinnamon [Ceylon]	1 part.
" Cloves	1 "
" Rose	1 "
Alcohol [deodorized]	1,800 parts.
Water	150 "

Mix them; put the mixture aside for eight days in a cool place, frequently shaking; finally filter.

◆

To Keep Earth Worms out of Flower Pots.—Pour on the soil a warm (80°-90° F.) decoction of quassia or wormwood and powdered horse-chestnuts. In a few moments every worm will come to the surface and can be removed.

The Commercial Varieties of Benzoin.

An editorial in a recent number of the *Chemist and Druggist* (September 26th), evidently written by an expert to whom commercial information, such as it can only be obtained in London, is amply accessible, contains an important contribution to our knowledge of the various kinds of benzoin at present known. The article says:

The source of the different varieties of gum benzoin known to commerce, and many points regarding the mode of preparation of the drug, are still, to a large extent, matters of conjecture. Some authorities, including Dr. Treub, the well-known director of the Buitenzorg Botanical Gardens, are of opinion that Penang and Palembang benzoin are yielded by the same tree, and that the difference in the appearance and in the yield of cinnamic acid of the two kinds is caused by differences in their mode of preparation. Mr. Holmes does not agree with this view, but inclines to the belief that the Sumatra and Palembang varieties are both produced by the same tree—*Styrax Benzoin*—and that the Penang gum is *sui generis*, probably the produce of the *Styrax subdenticulata* Miq., which occurs in Western Sumatra. Hanbury offers no definite opinion on the subject, nor does Flückiger in his last edition, just published, of the "Pharmacognosie." Contributions to the elucidation of a subject upon which so much divergence of view exists among authorities are always welcome, and they become doubly valuable when they are the result of careful local examination. In London the druggists distinguish four varieties of benzoin, viz., *Siam*, the costliest variety; *Sumatra*, which comes next in value; *Penang*, which is a comparatively recent addition to our materia medica; and *Palembang*, the kind mostly used by benzoic acid manufacturers. Leaving Siam gum, which is obtained from the mainland of Asia, out of account altogether, it is evident that the nomenclature of the remaining three varieties is not only altogether fanciful, but actually calculated to mislead. In Penang itself no benzoin is produced, and the gum imported by way of that great emporium of the trade of the Dutch East Indies is almost entirely, if not wholly, collected in the island of Sumatra. Palembang gum is also the produce of the same island, Palembang being simply the chief settlement of the residency of the same name, in the southeastern part of the island of Sumatra, where a great part of the benzoin of commerce is brought to market, and whence it is sent on to Singapore or Penang on its way to Europe. Sumatra, though it has been nominally under Dutch rule for over two centuries, still contains some of the least known spots on earth, and the detailed account of the cultivation and collection of the benzoin in one of the remoter districts of the island, which we owe to Mr. L. M. Vonck, a member of the Dutch-Indian Civil Service, stationed at Sekajoe in Sumatra, and which is published in the last issue of the Journal of the Netherlands Society for the Advancement of Industry, is, therefore, an acceptable addition to our knowledge of the collection of this important drug and the manner in which it passes into commerce. Mr. Vonck does not refer to the gum of which he speaks either as Palembang, Penang, or Sumatra benzoin, and it may, therefore, be taken for granted that those classifications are unfamiliar to him. The gum of which he writes, and which appears the only kind brought into commerce from Southeastern Sumatra, is evidently all obtained from one tree, and seems to correspond with the kinds known to our druggists as Penang and Palembang. So far as his evidence goes, therefore, it certainly favors Dr. Treub's opinion that there is no difference between the commercial source of Penang and Palembang benzoin. The benzoin tree (*Styrax Benzoin*, or, in Malay, pohon Kemenjan, or Menjan) occurs, according to Mr. Vonck, in various portions of the high and low lands of the residency of Palembang. It grows up to an altitude of about 600 feet above sea level, either in small clusters or sporadically between other trees. Formerly little attention appears to have been paid to benzoin culture. At any rate, the standard writers on the products of the Dutch Indies only mention benzoin as being collected from wild-growing trees in the virgin forests of the Upper Blitie, on the Lalang and Toengkal rivers, and in the wilds of Batang Lekoh in the country of the Koeboes. But the easy nature of the culture, and the high prices which good benzoin realized in former years (from £6 to £8 10s. per picul), acted as strong incentives to the extension of the plantation. There are only a few parts of the residency of Palembang in which the benzoin tree is either scarce or non-existent. In some other districts the tree is found wild, but its gum is never collected, nor is the tree cultivated systematically. The principal districts in which the benzoin tree is systematically cultivated in gardens are the divisions of Iliran, Banjoeasin, and Moesi Ilir. In the Koeboe country, already referred to above, in the virgin forests of which the benzoin tree was formerly of very common occurrence, it has now almost been extirpated. The tree flourishes in various kinds of soil, but experience shows a high, dry, sandy soil, free from danger of inundation, to be most fitted for its propagation. On low-lying, rich, and clayey soil the tree grows up more rapidly, but its gum is then of such a poor quality that the cultivation yields little or no profit. On such a soil there is also danger of floods, which are fatal to the tree. Marshy or stony soil is altogether unsuited to the culture. The tree is propagated from the seed, which is of a reddish color, almost round in shape, and of the size of a marble. It is enclosed in a green shell. When the would-be planter has gathered a sufficient quantity of the seeds, which are a favorite food of wild beasts of the forest, he plants them out in rows in the paddy-field, just before the paddy crop is put in the ground. Sometimes the young benzoin shoots which have grown up around the parent stem are dug out and transplanted among the paddy. The object of the plantation on the paddy-field is to secure the necessary shade for the seedlings, which would be easily killed by the fierce sunlight. Two seeds are usually planted in one hole; if both come up the weaker plant is generally destroyed. If the culture takes place by means of young shoots from the parent tree, these shoots, before planting, are stripped of their leaves and placed in water in bunches of about twenty-five, being kept afloat by two bamboo sticks. When fresh leaves have grown upon the shoots they are planted out in an oblique hole, which is left open for a time. The new benzoin tree grows from the roots of the young shoot, after which the stem of the latter perishes. The natives appear to take no trouble whatever in weeding their benzoin plantations, and many of the plants are therefore suffocated by creepers and weeds. Only after a lapse of seven years the native returns to the spot where he planted his seeds or shoots, for the purpose of gathering his first crop of juice. By that time the shoot has grown into a fine tree, branching and bearing leaves at the top only, and from 20 to 40 feet in height. When once the tapping of the tree has commenced its growth is almost arrested, and the color of its bark gradually changes from pale gray to brown. If the tree is left to grow wild its height trebles or quadruples, some of the specimens in the virgin forests being over 250 feet high. The incisions made in the tree are almost triangular in form, and are made at regular intervals and on a systematic and invariable plan. A yellowish juice begins to exude from the incisions a week after they are made, but not until six weeks or two months after its appearance has it hardened sufficiently to admit of being collected. The tree becomes exhausted between its seventeenth and nineteenth years, the drying-up process commencing at the lower part. The natives collect three different qualities of gum, classed according to the lightness of their color and their freedom from bark and other impurities. A full-grown benzoin tree yields from 1 to 3 catties (= 1⅓ to 4 pounds) every season, and its cultivation is a source of considerable affluence to its proprietor. In the Moesi Ilir district several proprietors own from 500 to 7,000 benzoin trees each. During the recent years of low prices, however, the cultivation has been carried on with great want of care, and in some parts a garden of 2,000 trees now yields hardly as much gum as a garden of 500 trees did when, some years ago, the collection of gum was carefully attended to. Still, the benzoin-producing villages of Sumatra are among the most prosperous in the whole island. If, through carelessness, as sometimes happens, the collection of the gum from some trees is forgotten during the season, the gum, after some months, is found to have exuded in great lumps, which have become quite hard and are covered with a dirty layer of black. These pieces are cut from the tree with an axe, and roughly rinsed in the nearest creek. Afterwards hot water is poured over this gum, which softens it and renders it fit for packing. Palembang is the trade centre for this district, and the Chinese merchants there are the principal, if not the only, buyers. They systematically adulterate the benzoin by the addition of inferior gum resins, wood, or earth, and it is said that for many years not a single parcel of pure benzoin has been exported from Palembang. The average benzoin exports from Palembang are about 700 tons per annum. Mr. Vonck mentions that the gum exported from Padang, on the west coast of Sumatra, is more valuable than that brought into commerce from Palembang. This has sometimes been ascribed to its greater richness in cinnamic acid, but Mr. Vonck believes it to be due rather to the greater care which is bestowed upon its collection. As the Penang and Palembang gums are the least valuable on the London market, and their prices correspond most nearly to the figures given by Mr. Vonck as the local value of the gum, equalling from about 5*s.* to 40*s.* per cwt., this may be taken as additional evidence in favor of the view that the Palembang and Penang varieties are identical, and that the gum known in London as "Sumatra" is the product of the western districts of Sumatra, and may be possibly obtained from a different tree.

Detection of Tin in Canned Food.

H. A. Weber, Ph.D., has investigated the canned foods of the market, and found all of those examined by him, except condensed milk, to contain *tin.*

The method employed in the determination of the tin was as follows:

The contents of each can were emptied into a large porcelain dish, and the condition of the inner coating of the can noted. After thoroughly mixing the contents, 50 grains were weighed off and incinerated in a porcelain dish of suitable size. The residue was treated with a large excess of concentrated hydrochloric acid, evaporated to dryness, moistened with hydrochloric acid, water was added, and the mass was filtered and washed, the insoluble matter being all washed upon the filter. After drying the filter with its contents, the whole was again incinerated in a porcelain dish and the residue treated as before. The solution thus obtained was properly diluted and saturated with hydrogen sulphide. After standing about twelve hours in a covered beaker, the precipitate was filtered off, incinerated, and the tin weighed as stannic oxide.—*Journ. Am. Chem. Soc.*

Improvement in Water Gas.

When steam is passing through incandescent carbonaceous fuel maintained at 550° to 750° C., a gas is produced which consists mainly of hydrogen and carbonic acid, with only small quantities of carbonic oxide. When the fuel is maintained at a higher temperature, the proportion of carbonic oxide increases, until at a temperature of 1000° the resulting gas consists of a mixture of about 40 per cent of carbonic oxide and 50 per cent of hydrogen, with only about 5 per cent of carbonic acid. This is known as water gas, and its use is often objected to on account of the poisonous properties of the carbonic oxide contained. The main object of an improvement introduced by Messrs. J. C. Reissig and J. Landin is to produce a gas containing but little carbonic oxide, and to increase its calorific power by removing the carbonic acid from the combustible gases. The process consists in passing steam (preferably superheated) or water through fuel contained in externally heated retorts, or in water-gas generators, maintained at 555 to 750° C. The resulting gas, consisting of hydrogen and carbonic acid in the proportion of 2 to 1, is cooled and freed from sulphur impurities in the usual way. It is then passed through an absorbing apparatus containing carbonates of alkali or alkaline earths, preferably solutions of sodium carbonate (soda) or potassium carbonate (potash). These substances readily absorb (especially under pressure) the carbonic acid, forming bicarbonates, from which the carbonic acid is easily removed by the action of a moderate vacuum, especially if aided by heat. The remaining gas consists principally of hydrogen, and ready for use, while the solutions are again available for unlimited repetition of the absorbing operations, etc.—*Scient. Amer.*

Identification of Arsenic and Antimony.

The method of separating arsenic and antimony by passing hydrogen sulphide gas and then dry hydrochloric acid gas through the tubes in which the metals have been deposited, as in Marsh's test, has been modified by James T. Anderson so as to be conveniently applied in cases where it is desired to identify as arsenic or antimony metallic deposits on porcelain.

Add a drop of ammonium sulphide to the deposit, which converts the metal into the sulphide. Allow the excess of ammonium sulphide to evaporate, and with an ordinary mouth blowpipe blow across the open mouth of a bottle containing concentrated hydrochloric acid, directing the stream of gas into the porcelain dish upon the sulphide. If it be antimony sulphide, it will disappear entirely, while arsenic sulphide will remain unaffected in appearance.—*Journ. Am. Chem. Soc.*

The Manufacture of Whiting.

This is how whiting is produced at the Meeching Chalk Quarries, on the west side of Newhaven Harbor, England: At the head of the quarry which works the cliff there is a big steam mill, which consists of a set of revolving harrows in a wide, shallow pit of what looks like lime in solution. At one end a clear stream of water, raised by machinery from a newly sunk well, is constantly flowing into the mill, and at the other end the discharge is as constantly flowing away. The chalk is thrown into the water, the revolving harrows thoroughly break and wash it, and it overflows with the discharge into precipitation or settling tanks sixty yards away. During the journey, by a system of cross drains and narrow channels at a dead level, the liquid is gradually depositing sand and grit, and by the time it reaches the pits, which are in five sets of four each so as to allow of a continuous working, and have a capacity of 250 tons, the chalk is purified and hardly a particle of foreign matter is discernible. When the water has sufficiently drained off, the chalk, now pure whiting, is taken from the pits and placed in the old-fashioned lumps in the drying sheds. The industry is a new one at Newhaven. The chalk has been hitherto used as ballast only.—*Chem. and Drugg.*

The Purity of Phenocoll Hydrochlorate and Othe Salts.

Phenocoll hydrochlorate having commenced to be in some demand as a combined antipyretic and anodyne, it may be useful to record one or two tests for its purity and that of other salts of phenocoll. It is stated (*Pharm. Zeit.*, September 19th, p. 586) that half a grain of phenocoll hydrochlorate should dissolve clear in about 15 C.c. of water, and that the solution should not turn ordinary litmus paper blue. Solution of ferric chloride should produce in the phenocoll hydrochlorate solution only the faint yellowish color of iron salts, but not a red coloration even upon warming.

Heated to 60° C. and treated with a few drops of solution of sodium carbonate, the aqueous solution should not give off the odor of ammonia; with a few drops of caustic soda solution the phenocoll base should be thrown down as a white crystalline mass. Burnt on platinum, phenocoll hydrochloride leaves no residue.

For the acetate the same tests apply, except that the aqueous solution is faintly alkaline and the behavior with ferric chloride is not the same. The free base melted under water and allowed to cool solidifies in crystals; it is also precipitated from a dilute aqueous solution by sodium chloride in long, silky needles. Melted with caustic soda, ammonia and phenetidin are formed, and when an aqueous solution is boiled with a few drops of hydrochloric acid for a few minutes it shows faintly the reactions of phenacetin treated similarly.—After *Pharm. Journ.*

Reagent for Acetone.

Prof. Alf. Schwicker communicates a new method of detecting acetone to the *Chemiker Zeitung* (No. 52).

He found that a mixture of acetone and aqueous ammonia dissolves powdered iodine with evolution of heat. The liquid becomes turbid, and after a time separates iodoform. At the same time there is produced an irritating odor, causing tears in the eyes, which is probably due to iodine substitution compounds of acetone. No gas is given off, and the liquid is found to contain acetic acid.

This reaction may be used to detect acetone, for even traces of the latter dissolved in water respond to it. Moreover, *alcohol* does *not* produce iodoform under the same circumstances.

The best way to execute the test is as follows:

To the solution containing or supposed to contain acetone add a few drops of strong ammonia, and then 1 or 2 drops of a decinormal iodine solution.

This will cause a blackish cloud of iodide of nitrogen, which disappears on shaking or gently warming, and soon makes place to a yellowish cloud of iodoform if the liquid was not too diluted. By adding 1 or 2 drops more of the iodine solution, the amount of iodoform may be increased. After every new addition of iodine, and disappearance of the black cloud by shaking, a few moments are allowed to elapse. On shaking. the odor of iodoform will be distinguishable in spite of the ammonia.

In the case of a very dilute solution of acetone a more dilute iodine solution must be used.

Should the black iodide of nitrogen not disappear, but remain, it may be decomposed by the cautious addition of hyposulphite of sodium.

Solutions of acetone of 1 in 5,000 yield a precipitate of iodoform after a few minutes, or at least exhibit a decided odor of iodoform.

Alcohol, as already stated, does not respond to this reaction, but aldehyde does. In this case iodoform is also produced, but the acid generated as a secondary product must in this case be formic acid.

Detection of Oil of Geranium in Oil of Rose.

G. Panajotow has communicated (*Berichte*, 1891, 2700) a method by which the presence of "Turkish oil of geranium (Indris Yaghi)" in true oil of rose may be discovered.

The reagent upon which the author relies is a solution of fuchsin rendered colorless by sulphurous acid. This solution was found by O. F. Müller to yield color reactions with certain resins, oils, and lakes. It was found that if 2 or 3 drops of the Turkish oil of geranium were shaken with 2 C.c. of the reagent (without heat), there was produced a bluish-violet color, changing after two hours to a magnificent *blue*. The same test applied to genuine oil of rose produced, some considerable time (about twenty-four hours) after shaking, a *red* color.

Mixture of both oils, when treated in the same way, always gave a *blue* color, even if the oil of geranium was present only in small proportion. The reason is that the *blue* coloring matter always forms sooner than the red one.

Consequently, if a blue color is developed by the test [at once or within two hours], Turkish oil of geranium is present.

Another test is suggested by the author, which depends upon the action of sulphuric acid upon Turkish oil of geranium. If equal parts of the latter and of concentrated sulphuric acid are mixed in a watch glass, the mixture becomes very hot, and gives out thick, white vapors having a tarry odor. There is produced a brownish-red, thick liquid which becomes turbid after addition of 95 per-per-cent alcohol, and separates yellow, fatty flakes. The solution becomes red, which after a while changes to yellow.

On the other hand, genuine oil of rose, when mixed with concentrated sulphuric acid, likewise produces a brownish-red mixture. This is, however, soluble in alcohol to a clear and almost colorless liquid.

[*Note by Ed. Amer. Drugg.* – The author mentions only "Turkish oil of geranium." So far as the adulteration of the Bulgarian oil of rose is concerned, this is probably the only kind of so-called geranium oil which is or has been used.

As there is much confusion about the term geranium oil, a brief explanation will be useful.

Up to within about ten years ago the oil distilled in India from *Andropogon Schœnanthus*, the so-called ginger-grass (also called rûsa-grass oil, oil of rûsa, which is the Hindustani name of the grass, and, curiously enough, has much helped to bring about its confusion with "oil of rose"), was brought to the Bulgarian rose-oil districts, for purposes of adulteration, by way of Constantinople. It was formerly called *palmarosa oil*, and later, when its origin became better known, "Turkish oil of geranium," to distinguish it at the same time from the oil of geranium distilled in Algiers and Southern France from species of *Pelargonium*. At present the oil of ginger-grass is used for the same purpose of adulteration probably as much as ever, but it should be remembered that it is not a product of Turkey. In Turkish it is called *itr-yâghî*, which means literally "grease oil" or "pomatum oil," and is very commonly applied by the common people to oil of rose itself. Those who know the difference call oil of rose *gül-yâghî*, "rose grease," "rose oil." The author of the above paper uses the term "indris Yaghi," which should at least be "idris yaghi"—a corrupt pronunciation of *itr-yâghî*.]

The Nature of the Viscosity of Oils.

An interesting and important announcement is made by G. Kraemer and A. Spilker (*Berichte*, 1891, 2785) regarding the nature of the viscosity of certain substances. In the course of an investigation of certain derivatives of styrol, they encountered new compounds remarkable for their viscosity, and they were led by theoretical deduction to ascribe this to an accumulation or increase of methyl groups. In carrying out this set of investigations they happened to start from allyl alcohol, which turned out to be the most successful source. This was made to react with methylated benzols, such as pseudocumol (xylol), in the following manner:

One hundred C.c of anhydrous allyl alcohol are mixed with 1,000 C.c. of pseudocumol (xylol, etc.), and the liquid added in very small quantities to a mixture of 100 C.c. of pure concentrated sulphuric acid and 50 C.c. of fuming nitric acid, the whole being kept cold during the operation. After the layers have separated, the sulphuric acid is carefully removed from the supernatant oil, the latter freed from adhering acid by water. alkali, and again water. If care is not taken the oil will be emulsified with these liquids, but the emulsion may be separated by ether.

The product is freed from excess of pseudocumol (xylol, etc.) by a current of steam at a temperature of 110° to 120° C. The temperature is then raised to 200° to 220° C., when a colorless, thick oil passes over with the steam, while a yellowish-brown resin remains behind.

The viscid oil may be obtained perfectly pure by renewed distillation with steam.

The resulting pure oil is colorless and exceedingly viscid.

[The viscidity of oils—upon which their usefulness as machine oils, lubricating oils. etc., depends—is estimated by a special instrument, known as the viscosimeter, in which the rapidity, or rather slowness, with which a certain oil passes out, from a reservoir, through a small tube may be carefully determined in seconds. The rate at which a given amount of pure water passes the tube being taken as 1, the viscosity number or degree of an oil is found by dividing the number of seconds the latter requires for flowing out by the number of seconds which water was found to require.] Determined in this way, the viscid oil obtained by Kraemer and Spilker possessed a viscosity degree of 700, a most extraordinary figure, the best Russian lubricating oil so far known possessing a degree of 40 only.

The authors conclude that the new compounds (of which they give the probable composition and structure) are the bearers of the viscosity in mineral lubricating oils. They also find that the degree of viscosity depends upon the number of methyl groups contained in them.

Methyl groups appear to have a direct bearing upon viscosity, as we know from other observations. Methyl alcohol, a very thin-fluid substance, is the starting point of the so-called fatty acid series. The higher we ascend in the scale, that is, the more numerous the methyl groups become, the denser and more viscid become the compounds.

The facts discovered by the authors are likely to lead to the manufacture of artificial lubricating oils of extremely high viscosity.

Colored Fires for Tableaux.

For green fire, medium slow-burning, use 13 parts of potassium chlorate, 66 parts of barium nitrate, and 21 parts of sulphur. For a quicker fire use more potassium chlorate and less of barium nitrate, leaving the proportion of sulphur the same. Thus the most rapid green fire known contains 36 parts of potassium chlorate and only 40 parts of barium nitrate. For a slower fire reverse the proportions.

Another beautiful green fire is made by mixing

Arsenic	2 parts.
Charcoal	3 "
Potassium chlorate	5 "
Sulphur	13 "
Barium nitrate	77 "

Mix.

The objection to this burned in the house is the arsenical fumes generated. For out-of-door work, however, especially when fired behind a reflector, the effect is superb.

This objection holds in regard to blue fires, nearly all of which contain arsenic. The following make the most beautiful blue lights:

I.

Realgar	2 parts.
Charcoal	3 "
Chlorate of potassium	5 "
Sulphur	13 "
Calcium nitrate	77 "

II.

Orpiment	1 part.
Charcoal	1 "
Black sulphuret of antimony	16 parts.
Potassium nitrate	48 "
Sulphur	64 "

A blue which can be used in a theatre or large hall, and will produce fine stage effects, though not so brilliant as the foregoing, is as follows:

Sulphur	15 parts.
Potassium sulphate	15 "
Ammonio-sulphate of copper	15 "
Potassium nitrate	27 "
Potassium chlorate	28 "

Mix.

A very brilliant violet-blue fire, medium slow-burning, has the following formula:

Potassium chlorate	51 parts.
Calcium carbonate	18 "
Powdered malachite	16 "
Sulphur	15 "

Mix.

For a deep crimson-red take

Potassium chlorate	17 parts.
Charcoal	23 "
Sulphur	90 "
Strontium nitrate	270 "

A good red for in-door use is composed as follows:

Strontium nitrate	8 parts.
Sugar	4 "
Potassium chlorate	1 part.

It is, perhaps, necessary to warn you that exceedingly great care should be taken by the novice who undertakes to prepare colored fires. The ingredients should be reduced to powder, separately sifted and put into closely corked, wide-mouth bottles until ready for mixing. Be careful to clean your mortar thoroughly, before and after pulverizing potassium chlorate especially. It is well to do this with all the substances named. Nitrate of strontium, and, in fact, all the other crystals used, except potassium chlorate, should be gently heated until all the water of crystallization is dissipated and they crumble into dry powder. Mix with a wooden spatula, and after mixing sift to make sure of an intimate mixture.—*Nat. Drugg.*

American Druggist

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EDITORIAL.

The Interstate Retail Druggists' League, organized in a convention held at St. Louis on the 3d of September last, has begun operations with a nucleus embracing affiliating organizations in Ohio, Tennessee, Illinois, Kentucky, Indiana, Kansas, Iowa, and Missouri, and a platform which reads as follows:

"The members of this Association pledge themselves to discontinue the sale of any proprietary medicine the proprietor of which has been reported as selling his goods to any firm outside of a regular established wholesale or retail drug or patent medicine firm in good standing with this Association, provided that upon due investigation by its officers the charges have been sustained and the discontinuance of [the sale of] the said proprietary medicine has been ordered by the Board of Control."

Co-operation by members of the retail trade in these States and in all other sections of the country is solicited, and Mr. G. Howard Willett, the secretary, of 701 Walnut street, Kansas City, Mo., will furnish information to any who may address him in relation to the requirements for membership or other details. The Executive Committee at present consists of E. W. Gordon, Nashville; W. F. Bodemann, Chicago; Robert J. Frick, Louisville; H. E. Zimmer, Indianapolis; C. T. P. Fennel, Cincinnati; W. C. Schott, Leavenworth; J. W. Ballard, Davenport, and J. A. Gallagher, Kansas City—all good and able men.

Efficient organization to accomplish the purpose intended is difficult, at best, and the circumstances attending the operations of the Association must necessarily demand corresponding adaptation of methods in different cases and in different localities; but, altogether, there is more promise of success in this particular undertaking than we recognize in anything yet advanced. If only the retail trade of these eight great Central States can be awakened to comparatively unanimous action, its influence will extend through the entire country. Without such assurance of support it is useless to expect aid from the wholesale trade. There is no doubt whatever that the great majority of wholesale dealers and jobbers, as well as a very large proportion of the proprietors of "patents," are desirous of promoting the interests of the retail druggists, and are prepared to make a considerable sacrifice of their personal interests to do so; but until the retailers, as a body, are in a position to co-operate with them, and do so earnestly and in good faith, they may justly feel that such sacrifices on their part would result only in loss to themselves and benefit no one.

Much has been hoped in some quarters from the results of the meeting of the National Wholesale Druggists' Association at Louisville; but it requires little wisdom to understand that nothing which the members of that organization can propose can influence the present situation, if it does not meet with the general approval and support of retailers. First of all, then, ORGANIZE! Leave the question of methods of subsequent procedure to be determined by a competent executive committee, which must be trusted to do the best it can for the greatest number. If the evils which have resulted in the present agitation have not yet manifested themselves in the neighborhood of your business, be thankful, but nevertheless join the movement to protect your future prospects and to help the less fortunate. Remember the parable of the Good Samaritan, and imitate his spirit. You will have no cause to regret it.

PROFESSOR CASPARI desires us to inform our readers that the publication of his portrait in connection with his communication in our issue of October 15th, was entirely without his knowledge or consent, and we take the earliest opportunity for doing so. To judge from his letter relating thereto, he apprehends that it may be looked upon by many as an undignified bid for notoriety, which, we are happy to say, is entirely groundless in view of the fact that he had absolutely no knowledge of our possession of his portrait until it appeared in connection with his article.

Since it has, of late, been our custom to publish portraits of authors of original communications, we will now say, further, that we wish it understood that in *no instance* has it been the result of, or compliance with, the desire of the author. In many cases the portraits have been obtained without the knowledge of the person represented—a matter by no means difficult, if one will take a little trouble. Our motive for such publication has been to increase the interest taken by the reader in the matter published, and enhance the individuality of the communication in the same way as it would be if the paper were read by the author in the presence of his audience instead of having it read by some one else or reproduced by a phonograph. Assuming that the person represented is not responsible for such use of his portrait, we fail to comprehend the existence of any ground for complaint on his part or objection on the part of his friends, so long as the portrait published is reasonably correct and not a caricature.

As regards any action on our part which would promote an evident desire of any person to make such use of our pages to secure notoriety, we can say that our disinclination to aid in the accomplishment of such a purpose would increase with the manifestation of it.

We have sufficient ground for believing that our readers appreciate and approve this method of increasing the intimacy of their relation to the person who thus addresses them, and we hope that this explanation of our position in this matter, and of the facts in the present instance, will relieve us of any necessity for future comment and prevent any misconception of the motives or intentions of those whose portraits appear.

We shall continue to publish as good portraits of authors of original communications as we can obtain, and shall consider ourselves under no more obligation to do otherwise than we would suppress the *name* of the writer on the ground of possible notoriety. Indeed, if one considers the subject fairly, he who is inclined to be modest in regard to his personal accomplishments has much better reason for suppressing the publication of his name than of his portrait. His features he is not ordinarily responsible for—they are the result of conditions but little under his own control; but he can call himself by any name he pleases, if the one given him in infancy does not suit him.

For the assurance of those whose sense of propriety and whose inherent reticence and modesty would still lead them to apprehend being thought desirous of publicity, we will suggest that their portraits are not likely to belie them, if there is any ground for believing that physiognomy indicates character.

"Extract of Lilacs."

SO-CALLED extract of lilacs (in perfumery) is prepared, according to *Der Seifenfabrikant*, as follows:

Triple extracts of jasmin, rose, tuberose, jonquil, and orange, each 200 Gm.; oil of ylang 0.1; tincture of musk 2 5; tincture of ambergris 2.5; terpineol (the so-called lilacin of commerce) 5 Gm., previously dissolved in alcohol 60 Gm.

To Render Fabrics, etc., Fire-proof.

THE following methods, proposed by T. M. Martin, have received official approval:

1. *For Light Fabrics.*

Ammonium Sulphate	8	parts.
Ammonium Carbonate	2.5	"
Borax	2	"
Boric Acid	3	"
Starch	2	"
Water	100	"

Dissolve the salts, which should be pure, and particularly free from iron, in a sufficient quantity of the water. Add the starch, previously made into a jelly with boiling water, and lastly the rest of the water. Impregnate the fabric with the solution, dry it, and iron it.

In place of 2 parts of starch, 0.4 part of gelatin or 0.4 part of dextrin may be used.

A quart of the solution will be sufficient for about 16 yards.

2. *For Woodwork, Ropes, Straw Mats, Bags, etc.*

Ammonium Chloride	15	parts.
Boric Acid	6	"
Borax	3	"
Water	100	"

Immerse the articles for fifteen or twenty minutes in the solution, heated to 100° C. (212° F.), press, and dry.

3. *For Paper.*

Ammonium Sulphate	8	parts.
Boric Acid	3	"
Borax	2	"
Water	100	"

Heat to 50° C. (122° F.) and impregnate the paper.—*Polyt. Mittheil.*

◆

To Make Good Sticky Fly Paper, mix by heat 3½ ounces raw linseed oil, 1 pound resin, and add 3½ ounces molasses. Apply to paper while warm.

NEWS AND NOTES.

CHICAGO.

R. C. Hattenhauer, of Peru, president of the Illinois Pharmaceutical Association, paid a visit to Chicago recently, and while here appointed the various committees and delegates of the association.

The course of the Chicago College of Pharmacy opened on the 8th of October with an address by Prof. C. L. Diehl, of Louisville, entitled "The Progress and Development of Pharmacy." From all accounts the college has a prosperous season before it.

C. L. Feldkamp was recently married to a Miss Plummer. He is now sojourning at Bay City, Wis.

During the month of September, **Prof. C. S. Hallberg**, of the *Western Druggist* and the Chicago College of Pharmacy, made a two weeks' tour through New York and the New England States.

John Roesch, of Menasha, Wis., recently came to Chicago to transact business. Before he engaged in business at Menasha he was a Chicago drug clerk.

It is reported that **W. H. Stolte**, the Wallace street druggist, is quite ill again.

E. C. L. Behrens, the manager of the pharmacy at 422 West 12th street, has returned from a several weeks' vacation in Kansas.

The stores of **A. S. Cowan**, at 100 North State street and 390 North Clark street, were recently held for sale by an assignee. The assets are scheduled at $8,000 and the liabilities are placed at the same figure.

Circulars in respect to pharmaceutical associations appear to be flying about quite rapidly of late. The secretary of the Illinois Pharmaceutical Association has issued several circulars calling for contributions to the treasury of the association, and A. C. Musselwhite has issued a circular to the members of the Chicago Retail Druggists' League assessing them the sum of $1, the better to carry on the purposes of the organization.

MISSOURI.

E. E. Schendal, of Hot Springs, Arkansas, spent a couple of weeks in St. Louis during the fall festivities of that city, where he had a glorious good time with his many friends who reside there. Mr Schendal is president of the Arkansas Association of Pharmacists. This organization is probably one of the smallest State Pharmaceutical Associations in existence. This comes from the fact that only a few druggists do business in the State. The comparative activity of the members, however, is very great, and it is doubtful if another State can make a showing where so large a percentage of the members attend the meetings and take an active part in the proceedings. Mr. Schendal is not a mere figurehead as president, but is an officer in fact as well as name, and does not hesitate to devote both time and money to the welfare of the organization of which he is the leader for the present year. Personally, President Schendal is a fine-looking man, and one who makes a good impression wherever he goes. He is a prominent citizen of Hot Springs, and delights in entertaining distinguished visitors to that city.

F. W. Sihler, secretary of the Meyer Brothers Drug Company, of Kansas City, has been visiting in St. Louis and conferring with the branch of that firm located in the Mound City. To Mr. Sihler's ingenuity is due, in a large degree, the credit for much of the entertainment given at the annual meetings of the Missouri State Pharmaceutical Association. He is the gentleman who got up the special band of Kansas City druggists to receive the St. Louis delegation at Excelsior Springs. He is a tall, handsome-appearing young man, whose winning ways make him many friends in the trade as well as in social circles. He says that Kansas City will see to it that the Excelsior Springs meeting of the State Association next June is attended by a larger delegation than ever before. Over one hundred and fifty Kansas City druggists registered last year, so we may look for a sufficient number in 1892 to make a very respectable convention of themselves. It is to be regretted that St. Louis druggists do not take the same interest in the Association as their cousins in the western part of the State. It is true they have a greater distance to travel, but even when the convention was held in St. Louis the members failed to respond as liberally as they should. Perhaps Mr. Sihler can be induced to spend a week or so calling on the St. Louis boys and working up enthusiasm among them, as he does in his own home.

The Daugherty-Crouch Drug Company is now established in its large and elegant building on the west side of Seventh street, just south of Clark avenue, St. Louis. This tall building has been remodelled and suited to the demands of a wholesale drug firm. The new company is doing a surprisingly good business, considering the short time it has been in existence. There is no questioning the fact that St. Louis is an immense wholesale drug centre, and any one doubting it should visit New York and Chicago, and then come down and inspect the wholesale drug houses of this city. A real amusing point in the life of this new firm is the manner in which they are besieged by crowds of travelling men, representing manufacturers and dealers, who solicit the custom of the wholesalers. If this continues much longer the firm will have up a sign which will read "No Admission to Representatives." The other wholesale houses of St. Louis are running along in the even tenor of their way, the same as if the new firm had not opened a business in their midst. The general feeling among both wholesalers and retailers seems to be that the establishment of this new company is a good thing for the wholesale drug trade of the city.

The College of Pharmacy of St. Louis, and the one located in Kansas City, have both opened their doors for the session of 1891–92. The attendance at both places is much larger than last year, indicating that the interest in pharmaceutical education of Missouri is on the increase. It is a fact worthy of notice that the large majority of all the students come from Missouri and Southern Illinois. There are, however, representatives from some of the Western and Southern States, and a few from the East and North. The Junior classes are composed of young men who are well fitted to study pharmacy, both as regards age and preliminary education. The improvement in this respect during the past five years has been very noticeable. Another feature which has attracted the attention of teachers is the small proportion of students who attempt to hold positions while they attend college. The St. Louis College of Pharmacy is getting ready to lay the foundation for the new building at the corner of Lucas avenue and 21st street. Everything will be in readiness for the opening session in 1892.

The cut-rate problem continues to be a very interesting and vital subject in the State of Missouri. Just at the present writing things are in such a condition that very little can be said which will be of interest to the general reader. All are looking forward to the Louisville meeting, which occurs in a few days, and where relief is expected from the present grievances. The longer the fight in St. Louis goes on between the cutters and the Association, the more it is demonstrated that Thomas Layton, president of the St. Louis Apothecaries' Association, is a very extraordinary man. If success comes, the credit is largely due to this one individual, who has spared neither time nor money nor vital energy in progressing the work with rapidity and discretion. If the retail druggists of St. Louis do not remember him with a handsome present, as a token of their appreciation, they will not be doing their duty to their deliverer. But Mr. Layton is one of the last men in the world to expect or even think of anything of that kind. Relief to his fellow-druggists is the only reward which he asks.

From the travelling men representing the various drug houses in St. Louis, Kansas City, and Saint Joe, we learn that the retail druggists of Missouri not only take a large number of pharmaceutical journals, but also read them carefully. There seems to be a marked difference in this respect between Missouri and some of the States not a thousand miles away. The druggists' patronage is not confined, by any means, to local publications, but copies of all the drug journals published in the United States can be found in any of the larger towns in the State. It is probable that the Missouri State Pharmaceutical Association has had much to do in the way of waking the druggists up to that point where they appreciate current pharmaceutical literature, and are ready to subscribe for more than one drug journal. The retail stores, as a rule, are also quite well supplied with books of reference, especially such ones as the National Formulary and the latest edition of one of the Dispensatories. Missouri is a State that has always been well represented at the annual meetings of the American Pharmaceutical Association, and has taken part in the work of revising the United States Pharmacopœia for some time past.

The metric system is faring well at the hands of Missouri druggists. The wholesalers state that they are selling more sets of metric system weights and more metric graduates than ever before to their Missouri customers. It seems as if there is a determination on the part of the Missouri pharmacist to be ready to make use of the revised edition of the United States Pharmacopœia as soon as it is issued. It will not be necessary for him to have the metric terms converted into the old-fashioned weights and measures by a dispensatory. The metric system is gaining friends all through the West, but especially so in this State.

The work of county organization is taking the lead of that in any other State. President Hemm, of the Missouri Association, manages to give the work some attention from week to week, and by the date of the next annual meeting we will have a number of local organizations, which will be a power in pharmaceutical matters. Any druggist of the State who is willing to undertake the responsibility of a local organization in his county should address President Francis Hemm, 3907 South Broadway, St. Louis, who will supply him with full particulars.

CANADA.

THE seventh anniversary of the Pharmaceutical Association for Hamilton District was celebrated on Friday evening, October 9th. Representatives from nearly every drug store in the city attended the meeting.

After the usual business had been attended to, the election of officers took place. It has been customary, though not necessary, to re-elect the officers who have served but one year to a second term of office, and the necessary form of balloting was gone through, with the following result: President, A. Vincent; first vice-president, W. C. Nitsleet; second vice-president, J. W. Gerrie; secretary, J. W. Sutherland; treasurer, R. Brierly; auditors, W. Park and J. A. Zimmerman; committee to select standing committees, Vincent, Chapman, and Reche.

The treasurer's report showed quite a satisfactory surplus in hand and a prompt payment of dues by members.

This Association, deeming it necessary that, for the preservation of unanimity amongst the members thereof, meetings simply for transacting business are hardly sufficient, has made it a practice annually to assemble around the festive board. Acting in accordance with the time-honored custom, the meeting adjourned to Newport's, where an excellent supper had been prepared.

For some few minutes there was a monotonous clattering of knives and forks, broken only by an occasional "pop" or a demand for more viands. But even a druggist has moments of satiety, and a halt was called while the following toast list was disposed of.

"Our Queen and Country," responded to by Alderman P. C. Blaicher, chairman of the finance committee of the civic council, who made the usual patriotic remarks in his inimitable style. The company also sang the national anthem, and, though the melody was a little out, through lack of proper rehearsal, the volume of sound indicated a healthy set of lungs possessed by each individual present.

"The Wholesale Trade," responded to by Mr. J. McHaffie, of Messrs. J. Winer & Co.; and Mr. Archdale Wilson, of Messrs. A. Wilson & Co.

"Ontario College of Pharmacy," responded to by Mr. J. A. Clark, who gave us a pleasant half-hour's entertainment in statistics.

"Past Presidents of the Association." Mr. Brierly gave us a very interesting account of the state of business, number of druggists, and appearance of the city some thirty-five years ago when he first made his début here.

Mr. Robert Stark gave us a reading entitled the "Mortgage."

"Pharmaceutical Association, Hamilton District," responded to by Mr. Arthur Vincent.

Song, "Katie Connor," by Mr. C. O. Baker.

Reminiscences by Messrs. R. Brierly, Robert Stark, and A. Wilson.

Recitation by Mr. M. C. Wild.

"The Ladies," responded to by Mr. C. O. Baker.

A vote of thanks for "extras" supplied by the two wholesale houses concluded the programme, and the assembly dispersed at 1:30 A.M.

Mr. Clark made a very good hit in his remarks. He was noting the changes in the ownership of businesses during the past ten years. A certain young man here recently took unto himself a wife. Mr. Blaicher reminded Mr. Clark that he had overlooked this fact. Mr. Clark replied: "The Pharmacy Acts Amendments Act of 1889 makes no provision for *sleeping partners.*"

The Ontario College of Pharmacy was reopened on Thursday, 18th inst. Quite an enthusiastic gathering welcomed the new staff. There were 104 students and several members of the Council there. Mr. Lewis, the registrar, introduced the chairman of the education committee, Mr. McKenzie, who after a few remarks introduced Profs. Scott, Heebner, Fotheringham, and Chambers, who all made their little bows and said their little speeches with the ease and grace that beget the confidence of one's audience. Now they have entered on a new régime, it is the sincere desire of the craft in Canada that the wounds, no matter how unjustly received, will be allowed to heal. With the increased space and greater facilities for imparting knowledge, the Ontario College of Pharmacy ought to keep at or near the head of the procession. And now that the project is mooted of affiliating with the University of Toronto, there is no necessity for druggists fearing annihilation or extinction of their kind at the hands of cutting stores. When the public realize that they are dealing with professional men, they will not insist on the small profits we are now compelled to accept. That is a good move, Ontario College of Pharmacy! Keep at it!

ENGLAND.

AN attempt has been made during the last month to "boom" Prof. MacIvoe's patent white lead. The company was formed three or four months ago which purchased these patents, and they promise to be in full working order next month. The process, it may be remembered, is a wet one, consisting of precipitation of the lead salt from solution by means of carbonic acid. It has certain obvious advantages, such as economy of material: any rough and unrefined litharge can be employed instead of the metallic lead essential in the old "Dutch" process. Moreover, the whole operation only requires some five or six hours, instead of five or six weeks by the older method. But the most important feature is the final product, which is stated to be superior to the finest flake white made by the Dutch or stack method, and numerous scientific experts have certified to this effect. The whole of the work is under the supervision of Mr. William Elmore, whose name is well known in connection with the successful Elmore copper-depositing process. The company has bought six acres of land at Northfleet and built a railway to a wharf on the Thames, whilst they are in the neighborhood of a good supply of chalk, for which they have contracted an unlimited supply at 36 cents per ton. The output at commencement will be 200 tons of white lead per week, but the company looks forward confidently to producing double that quantity, although they have no intention to reduce the price of their product beyond the market price of the best Dutch white lead.

Most of the societies connected with pharmacy are settling down to their winter sessions. The Pharmaceutical Society opened with an address from Mr. Gainsford Bruce, M.P., whose laudatory remarks were warmly received. The fact was announced that the Royal Society had given a grant of $750 to the Research Laboratory in order that it might continue the work on aconite and aconitine. So far, however, it must be admitted that the work done has resulted in nothing very startlingly original. Several of the workers in the laboratory, I hear, have suffered considerable inconvenience from tingling and numbing sensations, although extraordinary precautions are taken that no accidents may happen. I well remember the late E Richards, F.I.C., who attempted certain investigations on crystallized aconitine, informing me that for over a week he had lost all feeling in lips and tongue from contact with traces of the alkaloid.

This month the new regulations concerning the qualifying examinations of the Pharmaceutical Society come into force. The preliminary examination has not been altered, but the schedules of the minor and the major have been extended and amplified. In future candidates for the legal title of "chemist and druggist" will be required to actually perform operations in the pharmacy part of the examination, to indicate that they have a practical knowledge of the processes employed in manufacturing plasters, extracts, etc. In materia medica large additions have been made to the schedule of drugs with which the candidate is supposed to be familiar, including curare, guarana, coto bark, etc. The microscope has for the first time been introduced in botany, and acquaintance with sections of phanerogamic and cryptogamic plants, vessels, stomata, pollen, etc., will be expected. The principal addition, however, is in the chemistry portion of the examination, the candidate being required to satisfy the examiner of his ability in performing all the simple volumetric estimations required by the British Pharmacopœia, to recognize by tests the principal alkaloids, and undertake the estimation of alkaloids in cinchona bark, extract of nux vomica, and in opium. The major examination, which confers the title of "pharmaceutical chemist," has been extended by the requirements of microscopic recognition of tissues, cell contents, the reproductive organs of cryptogams, etc., and of drugs by sections and simple staining. In chemistry, analysis of mixtures containing three salts (formerly only two were given), full volumetric and quantitative analysis, including estimations of nitrogen in organic compounds, the separation of alkaloids, alkaloidal salts, and glucosides, or mixtures of these. The last examination upon the old schedule took place in July, when over 400 candidates for the minor presented themselves, and of these only 160 passed. The average failures are about 53 per cent, so it is evident that there was a rush to evade the new regulations. It may be of interest to mention that there are about 14,000 chemists on the register, of whom only 1,700 are pharmaceutical chemists.

A sensation has been caused in analytical circles by the expulsion of Dr. Johnstone from the Institute of Chemistry and from the Society of Public Analysts. The particular *casus offensæ* was the writing by Dr. Johnstone to the different public bodies that employed Mr. Otto Hehner as their analyst, pointing out that as he was an alien his appointment was illegal. Not satisfied with doing simply this, Dr. Johnstone calmly offered his own services at any remuneration that might be offered. The matter, of course, speedily came under Mr. Hehner's notice, who caused these letters to be photographed, and copies were placed in the hands of all the members of council of the two chemical bodies mentioned. The result was the expulsion of Dr. Johnstone for gross unprofessional conduct. Nevertheless, Mr. Hehner considered it wiser to take out letters of naturalization. He is a past-president of the Society of Public Analysts and holds a foremost position in this department in this country, which accounts for the strong sympathy that was shown him. The amusing part is that Dr. Johnstone, it is stated, still continues to put the initials after his name indicating his connection with these bodies, and that they have no power to prevent him. It is believed by several Fellows that these societies have acted *ultra vires*, there being no provision in their charters for expelling members on ethical grounds, and the action of the older society, the Chemical Society, is awaited with interest. Not many months ago I reported in these columns Dr. Johnstone's published experiments on the composition of the glycerides of butter. The views expressed by him were supposed to be confirmatory of Prof Wanklyn's ideas on the subject, which have since, however, been exposed by Mr. A. H. Allen and others as utterly erroneous. The last meeting at which the old professor ventured to maintain his views was so energetically denunciatory that the poor old man complained with tears in his eyes of the treatment accorded him.

London Market.

The recent reduction in value of citric and tartaric acids has induced a small demand, and soda compounds are in steady inquiry, otherwise the chemical market generally is very flat. Quinine has been unsalable, buyers refusing to pay more than 18⅜ cents for German make. A slight increase is noted in quicksilver and soda crystals.

The drug market has been more brisk and several improvements have taken place. Ipecacuanha and jalap are both higher, cubebs have slightly increased in value, and ergot is firmly held. H. G. oil of peppermint is dearer. Opium is very quiet, advices from Smyrna indicating large stocks and a probably early decline in rates. Several cases of good Taliquati and Karahissar have arrived and are fully up to average.

The following are current prices:

Chemicals.		
Acid, Citric..	per lb.,	$0.84
Oxalic.	"	.07
Tartaric.........	"	.28
Borax............	"	.06
Cream of Tartar,	"	.19
Calomel	"	.74
Corrosive Sublimate	"	.68
Mercury..........	"	.60
Potash, Cyanide..	"	.56
Bichromate......	"	.08
Chlorate...	"	.11
Soda, Bicarb.	per cwt.,	1.75
Caustic	"	2.58
Crystals........	"	.88
Sulphur flowers..	"	2.26
roll............	"	2.04

Drugs.		
Camphor, ref'd,	per lb.,	$0.36
Cascara	"	.06
Cochineal(black grain)........	"	.24
Cinchona	"	.06 @ .14
Ergot, Spanish,	"	.36
Ipecacuanha....	"	1.92
Jalap...........	"	.42
Oil Peppermint, H. G..	"	3.36
Opium........	"	2.12@2.40
Senega root	"	.38
Sarsaparilla....	"	.30
Shellac, TN....	per lb.,	.21
garnet, AC..	"	.18
butter	"	.19

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Illinois College of Pharmacy.—The winter term of the Illinois College of Pharmacy began September 24th Its present class is the largest it has ever had, and contains 67 seniors and 144 juniors. Seven of the students are ladies. The summer term will begin March 10th, 1892.

The Georgia Pharmacy Law again Amended.—At the last meeting of the Georgia Pharmaceutical Association it was determined to try and get the Pharmacy Law amended by striking out the clause requiring the State Board to license all graduates in medicine and pharmacy without examination. It was manifestly unjust to compel the Board to issue license to every M.D. who might apply and pay the fee. The Legislative Committee had the amendment drawn and introduced in the Senate, which body it passed by a vote of 28 to 10. In the House it had a hard time, as it was referred to the Committee on Hygiene and Sanitation, composed entirely of M.D.'s. They made an adverse report, but after several hearings of the Committee from the Association and Board they reported it to the House with an amendment excepting those who have had five years' actual practice or experience after graduation.

To register in Georgia now without examination, you must have certificate from some other State board, showing that you made 5 per cent more than was required to pass, or be a graduate in medicine or pharmacy of five years' active practice or experience. All others must be examined. The newly-fledged M.D. or Ph.G. must let the Board try his wings before he can now sail out into the pharmaceutical world. This is a step in the right direction, but it is too short, for who will claim that five years' practice, or any number, will teach the M.D. pharmacy?

The next meeting of the State Board of Pharmacy will be in Atlanta, November 6th. Those who expect to come up should notify the secretary, Dr. H. R. Slack, La Grange, Georgia.

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AMBERGRIS.

The exceedingly high prices (equal to fully three times the weight, in gold, of the drug) which perfumers have been compelled to pay for the finest ambergris lately is the best proof of the indispensability of the drug in the preparation of high-class perfumes. For over a year the price of the best ambergris has now ranged from 180*s.* to 200*s.* per ounce,* and until quite lately there did not seem to be any prospect of an early fall in prices. The small compass within which a very valuable quantity of the drug may be imported without attracting attention, and the ease with which the requirements of the custom regulations, that all goods imported shall be entered under their proper name and at their full value, may be circumvented where it is deemed advisable to keep quiet concerning a consignment of ambergris, render it exceedingly difficult to follow closely the imports of the drug. It is stated, for instance, that, although for many months fine ambergris has been thought to be exceedingly scarce in the English market—and the visible supply has been so in reality—there has been a far greater supply available than has appeared on the surface. Under these circumstances the recent importation of a piece of ambergris from Melbourne, weighing, it is said, 136 pounds and valued at £10,000, naturally caused a good deal of excitement. The piece is believed to be the same which was captured by a black man in Tasmania some time ago. But the matter still remains shrouded in some mystery, for the London consignees of the parcel refuse to show the piece to any one, and even decline to give the slightest information of any value. Whether this policy is a wise one or not is an arguable question; it is certain, however, that the mysteriousness of the consignees has not assisted in allaying the fears of a heavy fall in the price of the drug that were the natural outcome of the announcement of the large importation. It may be presumed, however, that the consignees will want to dispose of the drug, and it is certain that they will not be able to do so without showing their hand.

The historiological references to ambergris have recently been enriched by the publication, under the auspices of the Hakluyt Society, of the account of the voyages of François Leguat, a French Huguenot, to the isles of Rodriguez and Mauritius, Java and the Cape of Good Hope. The Sieur Leguat's voyages were made during the years 1691 and 1698, and in his narrative frequent references are found to the precious perfume. He states that it occurs plentifully on the shores of Mauritius, as well as of the island now known as Réunion, in the Indian Ocean, due east of Madagascar, and also on those of the little island of Rodriguez, in the same latitude, where, to quote his words, "the sea brings up yellow amber and ambergreece." The word "amber-gris" (gray amber) was, in fact, given to the substance expressly to distinguish it from the ordinary or yellow amber. Possibly both were believed to be of common or allied origin. Ambergris has been a prized and costly luxury for centuries, though the Sieur Leguat does not appear to have been quite alive to the value of the drug until taught by bitter experience. At Rodriguez he found a large piece of the substance, and carried it along as a curiosity, not knowing the true importance of the find. That piece of ambergris wrought its discoverer cruel misfortunes. It weighed about 6 pounds, and, as Leguat's party no longer cared to carry it, they disposed of it for a trifle to a Dutch artisan of the island, which was then a Dutch colony. The colonists were stringently forbidden to own or trade in the commodity, which was a monopoly of the Dutch Trading Company, who forwarded to Batavia all the ambergris found on its outlying stations, and from that port shipped the drug to Holland for sale. When the governor of Rodriguez learnt that Leguat's party had traded in the substance, he seized all their belongings, and finally banished them to a barren island rock, where they suffered great hardships. In the "London Price Current of Colonial Produce" of 1707 ambergris is quoted at 40*s.* to 45*s.* per ounce troy for "gray fine," while Irish amber, obtained on the Atlantic coast of the Emerald Isle, was valued at 25*s.* per ounce. Considering the respective purchasing powers of money two centuries ago and at the present day, these prices are quite equal to the average value of ambergris in recent years.

So plentiful was ambergris on the shores of the islands in the Indian Ocean in the seventeenth and eighteenth centuries that some of the islets of the northeast coast of Mauritius became known as the "Isles d'Ambre." Ambergris was also found in the Japanese waters; and the Dutch traders not only kept Europe supplied with it from their emporium in Batavia, but also imported it into the dominions of the various Eastern potentates with whom they came in contact. A piece almost rivalling the latest giant find was imported from Batavia into Madras in 1699, and is described in contemporary chronicles as "a very stately piece of ambergris, upwards of 800 ounces." On the Madras Islands, again, west of Ceylon, ambergris, according to another seventeenth-century traveller, was more plentiful than in any other part of the Indies. Any of it found on shore had to be delivered up to the king, the penalty for failing to comply with this order being the cutting off of the culprit's hand.

In the writings of earlier travellers references to ambergris are also by no means infrequent. Zanzibar was famous for its ambergris from before the time of Marco Polo. But there is no need to hark back to the half-forgotten worthies who made history in the Indies centuries ago for accounts of gigantic pieces of the valuable drug. It is true that the largest single piece recorded in history as an authentic find (it weighed 182 pounds) was one purchased from the king of Tydore by the Dutch East India Company nearly two centuries ago, but from America stories have since come of pieces many times heavier than that of the king of Tydore. It is only fair to say, however, that these American stories have never been backed by trustworthy evidence. Hence the account of the find, in the year 1853, by the schooner *Watchman* of Nantucket, of 640 pounds of ambergris in a whale floating on the high seas [see also *Amer. Journ. Pharm.*, where one whale is reported as having yielded 750 pounds of it.—Ed. Am. Dr.], with the stories of a 560-pound piece brought home by an American whaler in 1886, of a 266-pound trophy captured by a New Bedford whaler, and of a 130-pound piece taken out of a whale near the Windward Islands, may be dismissed as "not proven"; and the mass of detail with which some of these accounts are embellished may fairly be regarded as having been added simply "to lend artistic verisimilitude to a bold and unconvincing narrative," as Mr. Gilbert has it.

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* Tincture of Ambergris (4 oz. to the gallon) is quoted in wholesale price-lists at $1.25 per pound, that is, $200 per gallon.—ED. AM. DRUGG.

It is a fact, however, that in 1882 a piece of ambergris weighing 12 pounds, and found in a grave pit in New Zealand, was sold in the London market. It realized an average price of 85 shillings per ounce. There is also a story current that a well known Mincing Lane broker was instructed some years ago to sell "a barrelful" of ambergris which had been for many years in the unappreciated possession of a gentleman who was altogether unaware of the nature of the substance of which he was the fortunate owner. The barrel proved to be ambergris of very fair commercial quality, and was disposed of, with careful management, at the full market value of the day, the broker wisely never hinting to any one, until the last piece was sold, how great was the quantity entrusted to his care, for fear of spoiling the market.

The greater part of the ambergris sold in London during the last few years has been obtained by the New Zealand and Tasmanian whalers who ply their trade in the Antarctic Ocean. Whale-fishing was once an important industry in Tasmania, and quite a large fleet of whalers was owned by Hobart firms. Now the Tasmanian industry has practically ceased to exist, and there is no hope of its revival. New Zealand still possesses fisheries of some importance, and will probably continue to supply our market with much of its ambergris for many years to come. Meanwhile spermaceti whales are getting scarcer year by year, and the time may soon come when the scarcity of ambergris shall be chronic instead of spasmodic. It is to be hoped that, before that date, science will have taught us how to supplant nature in the production of ambergris; but at present there are no indications whatever of an efficient synthetic substitute.—After *Chem. and Drugg* (Editorial, October 17th).

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Wild and Cultivated Herbs.—At the recent meeting of the German Scientific Congress Dr. Schweissinger, of Dresden, read a paper dealing with the examination of a few narcotic herbs, showing the effect upon their alkaloidal value. The results obtained, so far as henbane is concerned, practically corroborate Mr. Gerrard's work. They are as follows:

	Per cent alkaloid
Herb. aconiti, wild	0.58
" " cultivated	0.60
" belladonnæ, wild	0.40
" " cultivated	0.17
" hyoscyami, wild	0.085
" " cultivated	0.070
" stramonii, wild	0.32
" " cultivated	0.26

Dr. Schweissinger extracted the herbs with water acidulated with sulphuric acid, evaporated, removed pectin by filtration, then added ammonia, and extracted the alkaloid with ether-chloroform, checking the result by titration. In the course of the discussion it was stated that wild stramonium is preferred in Germany, and Mr. Dieterich mentioned that cultivated belladonna and henbane yield not only very good extracts, but extracts which are rich in alkaloid.—*Chem. and Drugg.*

Assaying Pharmaceutical Preparations.

Mr. F. A. Thompson, of Detroit, presented, at the meeting of the Michigan Pharmaceutical Association in October, valuable suggestions respecting details of assaying adapted to galenicals, from which we quote:

A feature of his methods, for which he claims originality, is the use of *oak* sawdust for the tannin which it contains, which, as used, serves to retain coloring, waxy, and extractive matters and a considerable amount of chlorophyll. Other varieties of sawdust fail to accomplish this purpose.

BELLADONNA, STRAMONIUM, CINCHONAS, AND HENBANE.

	Requirement, based on average strength of drug.		Amount for Assay.
Fluid Ext. Belladonna Leaves	0.40%	total alkaloids.	10 C.c.
" " " Root, U. S. P.	0.50%	" "	10 C.c.
" " Stramonium Leaves	0.35%	" "	10 C.c.
" " " Seeds, U. S. P.	0.35%	" "	10 C.c.
" " Cinchona Calisaya. U. S. P.	2%	quinine.	2 C.c.
" " " Red. not less than	4%	total alkaloids.	2 C.c.
" " " Pale. " " "	3%	" "	2 C.c.
" " Henbane, U. S. P.	0.10%	" "	25 C.c.

REAGENTS.

Oak Sawdust, No. 80 powder	5 to 7 Gm.
Modified Prollius' Mixture*	100 C.c.
Dilute Sulphuric Acid, 1 to 5	q. s.
Chloroform (1 vol.) and Ether (4 vol.) mix.	q. s.
Ammonia Water	q. s.

Directions.—Gradually add the respective fluid extract (cinchona is best diluted 1 in 5 with 50-per-cent alcohol) to 5 or 7 Gm. of the sawdust, contained in a shallow dish, and, after thoroughly mixing, expose in a warm (100° to 110° F.) place for half to one hour. Transfer the dry mixture to an elongated 4-ounce bottle, and add 100 C.c. modified Prollius' mixture. After macerating fifteen to twenty minutes, with frequent shaking, transfer 50 C.c. of the clear supernatant liquid to a suitable beaker, add 5 C.c. of water and enough dilute sulphuric acid to render aqueous fluid distinctly acid, after thoroughly mixing with ethereal solution, and evaporate spontaneously or at a low temperature, removing the adhering alcohol by digesting a few minutes on a steam, sand, or water bath. Redissolve all the chlorophyll, wax, etc., in ether, and transfer the two fluids to a 2-ounce prescription bottle having a good lip, rinsing the beaker with sufficient acid water and ether to remove all the contents to the bottle. Wash the acid solution with ether until free from chlorophyll and coloring matter, rejecting the same, then add enough ammonia water to render fluid distinctly alkaline, and extract the alkaloids with the ether-chloroform mixture, using three portions, of 15, 10, and 10 C.c. each respectively. The addition of 5 C.c. of ether here facilitates the complete separation of the ethereal fluid. Evaporate the combined ether-chloroform solution to dryness at a low temperature, or spontaneously in a tared capsule, and dry the alkaloidal residue at 175° to 180° F. to a constant weight. The alkaloids so obtained should be completely soluble in dilute sulphuric acid. In the case of cinchona calisaya, the percentage of quinine can be estimated by the present U. S. P. method, or still better, by De Vrij's precipitation, as an iodo-sulphate.

Remarks.—The above process may be carried out satisfactorily by one of the following modifications: 1. Instead of evaporating the ethereal solution, it can be placed in a separator, and the alkaloids extracted out with a small quantity of acid water, using 3, 2, 2, and 2 C.c. respectively, and this solution treated the same as the acid solution in the above process. 2. The alkaloids may be extracted with larger quantities of acid water, using about 20 C.c. in four portions of 5 C.c. each, transferring the same to a separator, adding an alkali, and extracting the alkaloids with chloroform, using three portions of 10 C.c. each, and evaporating the same to dryness, and

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*Ether	250 C.c.
Chloroform	90 C.c.
Alcohol	25 C.c.
Ammonia, conc.	10 C.c.

drying residue to constant weight. By the latter method particles insoluble in acid water are sometimes carried along with the chloroform, unless great care is exercised and time allowed for the chloroform solution to entirely separate. In practice I prefer the original method.

COLCHICUM SEED AND ROOT.

	Requirement.	Amount for Assay.
Fl. Ext. Colchicum Seed, U. S. P.....	0.50 Colchicine, by trituration.	10 C.c.
" " " Root "	0.50 " " "	10 C.c.

REAGENTS.

Same as used for above process.

Directions.—Proceed the same as with the above process till the alkaloids are obtained in an acid solution, and instead of extracting, dilute the solution to 15 C.c. with 3-per-cent sulphuric acid and titrate with N-20 Mayer's reagent.

*Rule for Calculating Results.**—Subtract from cubic centimeter N-20 Mayer's reagent used, for each cubic centimeter of fluid after titration, 0.08 C.c., and multiply the remainder by 0.29 for percentage. If less than 3 C.c. N-20 Mayer's reagent is required, dilute only to 10 C.c.

COCA LEAVES.

	Requirement.	Amount for Assay.
Fl. Ext. Coca Leaves, U. S. P.,	0.50 Ether Sol. Alkaloids.	10 C.c.

REAGENTS.

Oak Sawdust, No. 30 powder..................	5 to 7 Gm.
Benzin..	95 C.c.
Alcohol (9 vol.) and Ammonia (1 vol. con.) mix..	5 C.c.
Dilute Sulphuric Acid, 20 per cent......... ...	q. s.
Ether....	q. s.
Ammonia..................	q. s.

Directions.—Obtain the dry mixture of sawdust and fluid extract the same as by above process, and, after transferring to suitable bottle, add the benzin and ammoniated alcohol, and macerate for an hour with frequent shaking. Decant 50 C.c. of the supernatant liquid to a suitable separator, add about 2 C.c. of water and sufficient dilute sulphuric acid to render aqueous fluid distinctly acid after a thorough rotation of the two fluids. Draw off the acid fluid, after complete separation, into a 2-ounce bottle having a good lip, repeat washing benzin solution with small portions (2 C.c.) of slightly acid water, using not over 10 C.c. in all. Wash the acid fluid with ether till free from chlorophyll and any other coloring matter, render fluid alkaline with ammonia water, and extract alkaloid with ether, evaporating the combined ethereal washings in a tared capsule. Dry alkaloidal residue to a constant weight at 175° to 180° F. Alkaloids should be completely soluble in dilute acid water.

CONIUM SEED.

	Requirement.	Amount for Assay.
Fl. Ext. Conium Seed..	0.50 Coniine.	10 C.c.

REAGENTS.

Oak Sawdust, No. 30 powder.........................	5 to 7 Gm.
Benzin..	q. s.
Alcohol (9 vol.) and Ammonia (con. 1 vol.) mix.....	5 C.c.
Dilute Hydrochloric Acid, 1 per cent........	q. s.
Hydrochloric Acid, U. S. P........	q. s.
Potassium Carbonate.................................	q. s.

Directions.—Proceed the same as with coca preparations up to the step of extracting the alkaloids from benzin solution, there substituting hydrochloric for sulphuric acid, using the 1-per-cent acid after the first washings. Wash the acid solution with ether, reject, add about 20 C.c. benzin and sufficient potassium carbonate to precipitate the alkaloids, and shake vigorously. Decant the benzin solution into a 2-ounce vial containing 5 C.c. of 1-per-cent hydrochloric acid. After complete separation return to the original bottle, and repeat the washings two or three times, or until the alkaloid is completely transferred to the acid solution. Transfer this acid solution—which should be clear, otherwise filter—to a tared capsule by the aid of alcohol, and evaporate at a low temperature, hastening the volatilization of the last traces of uncombined hydrochloric acid by adding at intervals 1 or 2 C.c. of alcohol. Dry at about 90 C. to a constant weight, and weigh as muriate. Multiply the result by 0.77675 to obtain the amount of coniine.

RECAPITULATION OF RESULTS OBTAINED BY LYON'S, LLOYD'S, AND AUTHOR'S PROCESSES.

Preparation.	Lyon's (Manual of Assaying).	Lloyd's.*	Author's.
Fl. Ext. Belladonna leaves.	0.44 per cent.	0.40 per cent (re-extracted.)	0.45 per cent 0.47 "
Fl. Ext. Belladonna root.	0.44 "	0.39 per cent (re-extracted.)	0.46 "
Fl. Ext. Stramonium seed.	0.36 "	0.30 per cent (re-extracted.)	0.34 "
Fl. Ext. Stramonium leaves	0.34 "	0.27 per cent (re-extracted.)	0.34 "
Fl. Ext. Cinch. Comp.........	1.47 " (lime process.)	....	1.52 "
Fl. Ext. Conium seed..........	0.40 per cent.	....	0.38 "
Fl. Ext. Colchicum root....	0.36 "	....	0.38 "
Fl. Ext. Coca leaves........	0.53 "		
	0.50 "	....	0.51 "
Fl. Ext. Henbane..........	0.09 " †	....	0.092 " 0.088 "
S. Ext. Stramonium leaves..	2.7 "	....	2.9 "
S. Ext. Belladonna leaves.	4.6 "	....	4.9 "
Cocaine (muriate) in 50 per cent alcohol.	Amount taken. (1) 0.50 Gm. (2) 0.50 " (3) 0 50 "	....	Found. (1) 0.0485 Gm. (2) 0.0495 " (3) 0.049 "
Atropine (sulphate) in 50 per cent alcohol.	Amount taken. (1) 0.0392 Gm. (2) 0.0191 " (3) 0.0191 " (4) 0.0392 "	....	Found. (1) 0.038 Gm. (2) 0.020 " (3) 0.0185 " (4) 0.038 "
Hyoscyamine in 50 per cent alcohol.	Amount taken. 0.020 Gm.	....	Found. 0.0185 Gm.

Note on Oil of Neroli.

Schimmel & Co. announce (in their "Herbst-Bericht") that oil of neroli of their own distillation has a specific gravity of 0.887 and is optically inactive. When cooled to +15° C. (59° F.), a solid in form of fine, shining lamellæ begins to separate from it. At 0° C. (32° F.) the oil solidifies to a mass having the consistence of butter. The stearopten of oil of neroli appears to be a paraffin-like substance, similar to that existing in oil of rose. It may be separated from the liquid portion of the oil by means of 90-per-cent alcohol, in which it is difficultly soluble.

Schimmel & Co. examined eleven different samples of oil of neroli, obtained from the best commercial sources, and found their specific gravities to vary, at 15° C., between 0.875 and 0.889. Among nine of these samples, eight were found to polarize to the right, and only one was found optically inactive. The rate of polarization varied from +0°52′ to +9°40′. Only one of them solidified at 0° C. All the others remained liquid. None of them separated any stearopten upon addition of 90-per-cent alcohol.

For the present no explanation of these differences in behavior can be given. It may be due to natural causes, but is likely to be followed up until the matter is cleared up.

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* Lyon's Manual of Assaying, p. 78.

* Using 75 C.c. instead of 50 C.c. chloroform for 5 C.c. of fluid extract.

† Modification of Beckurts' process. Pharm. Rund., Oct., 1891, p. 240.

India Opium.

The public interest in the cultivation of the poppy and the manufacture of opium in India has lately been somewhat excited owing to endeavors made through the English Parliament to get the Indian Government's connection with it abolished. Whether opium smoking in China would thereby be diminished, and whether it is an evil which should be suppressed, are matters which do not come within our province, nor shall we discuss them. But the agitation against the opium trade during the last parliamentary session has done a good service to science by securing the official publication of an article on opium by Dr. George Watt, C.I.E., reporter on economic products with the Government of India. The article was written for the "Dictionary of Economic Products of India," and consists of about seventy-five foolscap pages of print. It deals fully with the habitat of the poppy, the trade in poppy seed and the manufacture of oil therefrom. The average yearly export of poppy seed from India during the past ten years has been about 600,000 cwt., Bombay and Bengal providing two-thirds of it, and Belgium and France receiving the same proportion of the exports. The native consumption of the seed and the oil is large. Extensive as the exports are, imports are recorded regularly from year to year, part of the imported seed coming from Persia, this seed being the supply from which, after propagation, much of the Malva opium is obtained.

As to the history of opium we need not follow Dr. Watt closely. The Arabs carried it to India somewhere about the eighth century. At the same time, or probably a century before, the poppy was taken to China, and it appears certain that the poppy has been grown there for the extraction of opium since the fifteenth century. The story of its progress as a luxury amongst the Celestials is too long for these columns. Edict after edict against it has been issued. It was regarded as an evil before England had put foot in India. Yet the habit has grown, and that to such an extent that India, Arabia, Egypt, and Persia have been unable to keep pace with the demand for the drug. Ten years ago the opium produced by the Chinese themselves amounted to about 30,000,000 pounds per annum, or three times as much as is obtained from all other sources. The present exports of opium from India amount to about 13,300,000 pounds per annum, a little more than two-thirds going to China.

Opium is also manufactured in India for local consumption, but not so largely as for export. In Bengal it is grown under a license from the Government. The cultivators have advances made to them; they sell their product to the Government at a price fixed for the year. The opium is finally sold by auction at Calcutta to the highest bidder, and at that point the direct connection of the Government with it ceases. The Malva opium, grown in Central India and Rajpootana, yields a revenue to the state, chiefly from the duty charged for its transit through British territory to Bombay. In 1889-90 the total net Indian revenue from opium was Rs. 7,908,322.

While there is no doubt that the poppy which grows in Asia Minor, and from which medicinal opium is obtained, is the *Papaver somniferum* var. *glabrum*, we possess no proof, Dr. Watt says, as to whether or not that plant grows in India. One of the most interesting parts of his report deals with the botany of the poppy, and he has occasion to lament that so many authorities and writers (even the authors of "Pharmacographia Indica") have perpetuated mistakes and repeated statements without personal investigation. That the Bengal poppy and the Malva are different has generally been the idea, the former being said to be *P. somniferum* var. *album*, and the latter var. *glabrum*, so Dr. Dymock and his associates say; but Dr. Watt states, in effect, that although the Malva poppy has a red-like flower, it has many characteristics which exclude the supposition that it is *glabrum*. Considering all the experiments made by Mr. Scott, a man with great practical experience if not precise botanical knowledge, Dr. Watt is able to select at least fourteen forms which are probably recognizable races. There is the white-capsuled poppy, the black-stalked poppy, monaria, teyleah, kutila, sabzakutila, and so on, each of which can easily be recognized by the experienced eye; each differing in value, especially in yield and quantity of opium, and some which grow well in Malva have proved ill-suited to the climate and soil of the opium tract in Behar and Benares. The poppy is not a wanderer in India. Although it has been cultivated for centuries, few of the plants are to be found growing wild. Mr. Scott's observations were made upon plants experimentally grown by himself and compared with plants from the fields. Every care was taken to keep each distinct, and it is, therefore, of much value, as a commentary upon the recent suggestion to employ Indian opium in British medicine, to notice the morphia yield of the inspissated juices from the respective poppies. It is notable that in all cases the alkaloid value is very much lower than that of Asia Minor opium. These are the figures in percentages:

Narcotine.	Morphine.	Total.
3.4	2.98	6.38
3.31	2.88	6.19
3.14	3.16	6.30
3.65	3.56	7.21
3.71	3.71	7.42

These results are taken from opium which has not undergone any cooking, so that destruction of morphia is excluded. But that is of little moment in view of the relative proportions of narcotine and morphine in the opium. Narcotine, it will be seen, is the chief constituent; it is the objectionable principle of opium, and exists in Asia Minor opium to the extent of scarcely more than a fourth of the morphine present. It is obvious, therefore, that, apart from the low morphine content of Indian opium, its high percentage of narcotine quite unsuits it for medical use. The question arises, Can the varieties of poppy at present grown in India be made, by different methods of culture, to yield an opium of equal value to that from Turkey? The question cannot be satisfactorily answered until the true *Papaver somniferum* var. *glabrum* has been cultivated in India; but it seems unlikely that this plant could degenerate in that country to the condition of the plants which have so long been propagated there. It is not a matter of culture at all, but one of botanical variety, and Dr. Watt is right in asking that greater attention should be paid to this branch of the subject. His whole report, several sections of which we have not ventured to touch, is one which should throw considerable light upon a somewhat obscure subject.—After *Chem. and Drugg.*, October 24th.

A New Formation of Calomel.

Ettore Barbi, of Siena (Italy), announces in *Bolletino Farmaceutico* (1891, 547) that he has observed a new reaction by which calomel is generated.

He had occasion to pass the gas produced in the preparation of chloride or sulphate of zinc—viz., hydrogen—into a concentrated aqueous solution of mercuric chloride, when he noticed that this became cloudy at first and afterwards deposited a white precipitate, which was found to be calomel. Upon cooling the solution of the bichloride the precipitate became more copious. The reaction is evidently a simple reduction by hydrogen, and must take place after the following scheme:

$$\begin{array}{ccccccc} 2HgCl_2 & + & H_2 & = & Hg_2Cl_2 & + & 2HCl \\ \text{mercuric} & & \text{hydro-} & & \text{calomel} & & \text{hydro-} \\ \text{chloride} & & \text{gen} & & & & \text{chloric} \\ & & & & & & \text{acid} \end{array}$$

Borax-Boric Acid.

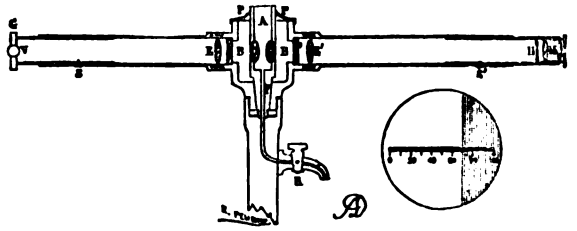
The somewhat feeble solubility of boric acid in water (1 in 25) has induced Mr. Jaenicke, of Goerlitz, to search for a substance which would increase its solubility without interfering with its uses. He found borax to be the most suitable. Equal parts of borax and boric acid can be made to crystallize together in form of hard crystals, which are soluble in about 6.5 parts of water at the ordinary indoor temperature, in about 3.3 parts at 100° F., and in about 1.3 parts at boiling. If a hot saturated solution is rapidly cooled, it will separate the excess of the salt, not immediately, but after some time only; hence it is possible to use supersaturated solutions in certain cases.—*Therap. Monatsch.*, No. 9, 477.

OPTICAL DETERMINATION OF ALBUMIN IN URINE.

We have already in our preceding volume described Jean's Oleorefractometer, by means of which the identity and purity of many fixed oils, fats, and other bodies readily reduced to a liquid state may be determined.

H. O. C. Ellinger has recently found that it may also be employed for the estimation of albumin in urine.

The apparatus, which is here illustrated, consists of a tube, having a telescope at one end, and a lens at the other which is placed in front of the source of light. In the centre of the instrument is a reservoir confined between the glass plate B and B', and within this reservoir is a removable prism with glass sides. If both the reservoir and the prism are filled with the same liquid, the observer looking through the telescope will find, upon a photographically reduced scale contained inside of the tube, a shadow, the perpendicular line of which coincides with the mark 0. If the two liquids differ optically, the shadow will begin at a different mark. In some cases it will be to the left, in others to the right of zero. According as the case may be, there is an arrangement by which the observation may be easily made in either case. In the cut the scale shown is that used for substances having a right-handed action.



Ellinger has found that if urine containing albumin is deprived of the latter by heating, addition of a drop of dilute acetic acid, and filtration, a portion of the filtrate then introduced into the central reservoir of the instrument, and some of the unboiled but filtered urine introduced into the prisms, the shadow will be pushed to the right in proportion to the amount of albumin. In five different experiments the author obtained the following readings on the scale:

2.5, 4, 4.5, 5, 5.

By actual analysis the corresponding amounts of albumin in 1,000 parts of the urine were found to be—

2.71, 4.36, 4.94, 5.10, 5.22.

It will be seen, therefore, that the results are sufficiently accurate for clinical purposes.—After *Journ. f. prakt. Chem.*, 44, 256.

Cleaning of Cover Glasses.

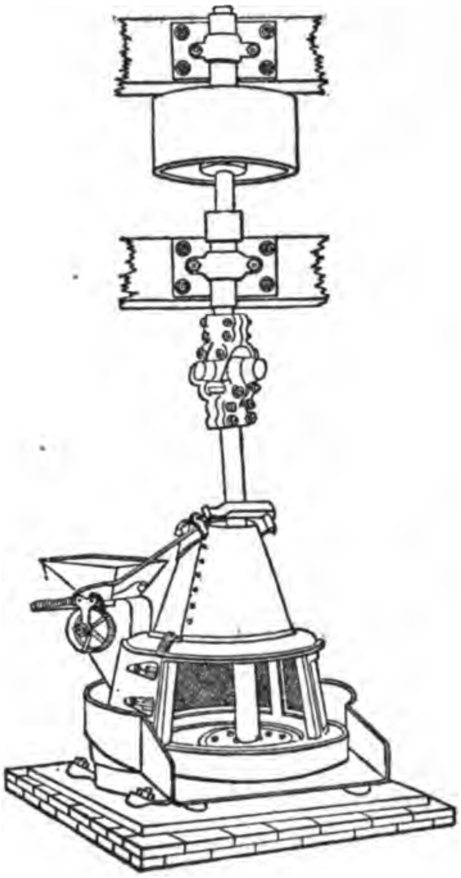
The following two methods are recommended in the *Pharm. Zeitung* for the cleaning of cover glasses for microscopic objectives:

1. Dissolve a pinch of chromic acid in about 1 drachm of water in a wide, flat-bottomed glass vessel, add 2 fluidounces of sulphuric acid, and place the cover glasses, each separately, into the liquid. After an hour pour off the liquid, wash the glasses several times with water, and then cover them with a mixture of 1 volume of hydrochloric acid and 3 volumes of alcohol. Pour this liquid off after about fifteen minutes, wash the glasses several times with alcohol, and lastly with perfectly pure ether, dried by means of calcium chloride. Lastly, the glasses are placed on a sheet of smooth white paper spread out by means of a small glass rod, and as soon as dry (after about five minutes) transferred into a box. (J. Lusteck.)
2. Place the cover glasses, immediately after use, into concentrated sulphuric acid. When a sufficient quantity has been collected together, add some more of the acid, and warm for some time. Then pour off the acid, wash well with water, next with absolute alcohol, and lastly with ether.

A NEW DRUG MILL.

The accompanying cut represents a new grinding mill which possesses several novel features.

Its motive power is intended to be an engine, attachment being made by a belt. The axle carrying the pulley and grinding plate is loosely bolted to solid supports, and the axle is doubly jointed, permitting the lower half, to which the grinding plate is attached, to assume various angles of inclination, corresponding to the varying thicknesses of fragments which are passed between the grinding surfaces from the hopper attached to the side. This hopper is kept in vibratory motion by the revolution of the axle, thus insuring a regular feeding of new material. The pressure is exerted merely by the weight of the grinding plate, axle, and pulley.



A New Use for Tuberculin.

The Board of Health in Philadelphia has, according to the New York *Times*, begun an inquiry concerning the sale of the milk of consumptive cows in that city. It appears that this action was suggested by the report of the investigation made by a committee which was instructed, by the Veterinary Department of the University of Pennsylvania, to test the value of Koch's tuberculin by experiments in which cows should be the subjects. The committee began its work last spring, and its conclusions are that, while the tuberculin has no value as a curative agent, it is very useful as an agent for revealing the presence of tuberculous disease. It is difficult to detect tuberculosis in cows in the early stages of the malady, and as it is of great importance that the actual condition of diseased milch cows should be known, the tuberculin may possibly be of great service to the human race, even if the condition of consumptives cannot be improved by the direct application of it. The committee was led by the result of its experiments to publish a most emphatic warning against the sale of the milk and flesh of tuberculous animals, and this has directed the attention of the Board of Health to the milk supply.—*Medical Record.*

Method of Preparing Small Quantities of Solutions of a Definite Specific Gravity.

MR. CARL MUELLER read a paper on this subject at a recent meeting of the Pharmaceutische Gesellschaft at Berlin (*Berichte der Pharm. Ges.*, i., 247).

The object of the author was to facilitate the preparation of such solutions when more refined apparatus, such as specific-gravity balances, etc., were not available.

The only requisites are a good scale and a graduated cylinder or a flask marked at 10, 20, 25, 50, or 100 C.c.; also a thermometer.

The method employed by the author is one of calculation chiefly, a denser liquid having to be diluted with a lighter liquid, which in most cases will be water.

The author's method is not new; but, as it is always useful to refer to such formulæ, we give it here.

Let the following denote:

W = weight in grammes of the stronger solution.
V = volume in cubic centimeters of the stronger solution.
S = specific gravity of the stronger solution.
s = specific gravity of the solution which is to be prepared.
x = volume in cubic centimeters or grammes of water to be added.

[All volume is understood to be in cubic centimeters, and all weights in grammes. It should also be remembered that

(*a*) Volume (in cubic centimeters) × spec. grav. = weight (in grammes).

$$(b)\ \frac{\text{Weight (in grammes)}}{\text{Spec. grav.}} = \text{Vol. (in cubic centimeters).}$$

$$(c)\ \frac{\text{Weight (in grammes)}}{\text{Vol. (in cubic centimeters)}} = \text{Spec. grav.]}$$

The absolute weight of the more dilute solution may be expressed in two different ways,

either

$V \times S + x$ (where x denotes grammes of water),

or

$(V + x)s$ (where x denotes cubic centimeters of water).

Setting these values equal, we have

$$VS + x = (V + x)s,$$

and, solving this equation for x, we get

$$x = V\frac{S-s}{s-1} \qquad \text{(No. 1)}$$

x here denotes the number of cubic centimeters of water which are to be added to V cubic centimeters of the stronger solution to produce the solution of the desired lower specific gravity.

This may also be expressed thus: The V cubic centimeters of the stronger solution are to be diluted with water until the total weight is equal to W + x (the original weight of the stronger solution), and the quantity of water, in grammes, found by the above-given formula.

As the water need not be weighed, but may be measured (in cubic centimeters), weighing becomes altogether unnecessary under certain circumstances. This is the case always when the specific gravity (S) of the stronger solution is actually given and does not require to be determined experimentally.

If it is desired to start from the absolute weight (W) of the stronger solution, instead of its absolute volume (V), then it will be easily seen that the following equation expresses this:

$$x = \frac{W}{S} \cdot \frac{S-s}{s-1} \qquad \text{(No. 2).}$$

Hence, if the specific gravity of both the stronger and the weaker solution is given, no determination of volume is required at all.

If very great accuracy is required, the temperature, rate of contraction, etc., must be taken account of.

Example.—Supposing we have a solution of potassa of specific gravity 1.135, and we are to prepare from it one of specific gravity 1.050, then we find from equation No. 1 that we have to add, say to 100 C.c. of the strong solution,

$$x = \frac{100\,(1.135-1.050)}{1.050-1} = \frac{8.5}{0.05} = 170 \text{ C.c. of water.}$$

Or to 10 C.c. we have to add 17 C.c., or to 1 C.c. 1.7 C.c. of water, etc.

On the other hand, it may be required that a *definite* volume (V) of a more dilute solution be prepared by mixing a stronger solution with water.

Let

y = the number of cubic centimeters of the stronger solution.

The value of V will therefore be expressed by

$$y + x = V \qquad \text{(No. 3)}$$

Hence the absolute weights will be expressed by the following equation, in which the term x remains unchanged, as 1 C.c. of water is considered to be equal to 1 Gm.:

$$Sy + x = Vs \qquad \text{(No. 4)}$$

Solving both of these equations for y (or eliminating y), we obtain

$$x = V\frac{S-s}{S-1} \qquad \text{(No. 5)}$$

The value of V in this equation refers to the value of y.

On substituting, in equation No. 3, the value for x found in equation No. 5, we obtain finally

$$y = V\frac{s-1}{S-1} \qquad \text{(No. 6)}$$

The rule is therefore as follows: To $V\frac{s-1}{S-s}$ C.c. of the concentrated solution add $V\frac{S-s}{S-1}$ C.c. of water.

Example.—We have a solution of potassa of specific gravity 1.135. We want to prepare 100 C.c. of a solution of specific gravity 1.05.

We must therefore mix

$$\begin{array}{ccc} \text{Stronger Solution} & + & \text{Water} \\ V\dfrac{s-1}{S-1} & + & V\dfrac{S-s}{S-1} \\ 100\dfrac{1.05-1}{1.135-1} & + & 100\dfrac{1.135-1.05}{1.135-1} \end{array}$$

or

$$\begin{array}{ccc} 37.04 \text{ C.c.} & & 62.96 \text{ C.c.} \end{array}$$

[*Note by Ed. Am. Drugg.*—We have translated freely, and have omitted some portions. Of course, the same method of calculation may be used also when the diluent is not water but a dilute solution of the same substance.]

Pental, or Trimethyl-ethylene.

ANOTHER anæsthetic has made its appearance, viz., "pental." This is the name given by Dr. von Mering, of Halle—who had also introduced the hypnotic amylene hydrate, $(CH_3)_2COH$, into therapeutic practice—to a new derivative of amylene, viz., the trimethyl-ethylene: $(CH_3)_2.C{:}CH.CH_3$. It is to be regretted that a commercial name has been coined for this; or at least that no better name than "pental" has been chosen, for the presence of 5 carbon atoms should not have been taken as a characteristic feature. [We agree in this matter fully with the editor of the *Pharm. Zeitung*, from which we take the notice of this new anæsthetic.]

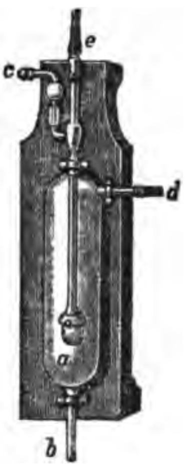
According to present reports, pental is a safe anæsthetic, and acts promptly, only about 20 C.c. of it being required to produce anæsthesia, which supervenes generally after four or five minutes. Insensibility is neither very deep nor very long, but it is sufficient to permit, under its influence, the performance of minor operations, such as extraction of teeth, etc. In most cases insensibility to pain appears before complete unconsciousness. Pental is said not to produce any disagreeable after-effects, and no untoward symptoms during its use.

Trimethyl-ethylene boils, according to E. Schmidt, at 35° C. (95° F.); according to Le Bel, at 36°–38° C. (96.8°–100.4° F.). Its spec. grav., according to R. Schiff, is 0.6783 at 0° C. (32° F.), and 0.6353 at 36.8° C. (98.3 F.).

AN IMPROVED FILTER PUMP.

MAX STUHL has constructed an improved filter pump, entirely of glass, which is here illustrated.

It works well even with a pressure of only one atmosphere, and uses less water than any filter pump heretofore constructed.



Suction takes place through the tube *c*. This is connected in the usual manner with the vessel from which the air is to be exhausted. When the apparatus is to be used for suction, that is, for rapid filtration, *d* is closed with a cap or by a rubber tube and pinchcock. Water is admitted at *e* and passed out through *a* and *b*.

The apparatus may also be used to produce a blast. In this case *d* is connected with the blowpipe, and the flow of water is carefully regulated so that the blast will have just the desired strength, without any permanent collection of water in the air chamber *a*.

It is capable of producing an evacuation to as low as 20 Mm.

The apparatus is manufactured, in one piece, and mounted on a board, by Max Stuhl, of Berlin.

Examination of Drugs in Massachusetts.

THE report of the inspection of drugs in Massachusetts during the year ending September 30th, 1890, just received, contains many items of general interest. In the course of the general report the following statements occur:

Within the past year there was a sudden increase in the number of empirical preparations used as cosmetics, and especially of certain articles advertised for the purpose of "improving or beautifying" the complexion. Upon examination of these preparations, several of them were found to be of an unusually poisonous character. They contained from 3 to 8 grains of bichloride of mercury (corrosive sublimate) to the fluidounce, the principal ingredients being corrosive sublimate, water, and a little tincture of benzoin. In the case of one of these articles—Madame Rupert's Face Bleach—it was further stated that "*it is guaranteed harmless, containing no arsenic, lead, bismuth, sulphur, lime, or anything injurious to the skin. Its effect is always beneficial.*" Another preparation—Madame Fale's Excelsior Complexion Bleach—put up in the same attractive form, is stated to be "*composed of strictly harmless ingredients,*" but was found on analysis to be nearly identical with the former and containing the same violent poison. These articles were heralded by glowing advertisements, and in the case of the latter a public hall in Boston was secured, a band of music, and a free lecture given for the purpose of introducing the preparation to the public. To the credit of the people, it should be stated that the audience was very small.

Instances of serious harm from the use of these articles came to the knowledge of the board—a fact which is not surprising when it is known that deaths have occurred in several instances from the external use of strong solutions of corrosive sublimate. . . . If such preparations are used at all, they should only be sanctioned if accompanied by careful instructions, and with knowledge of their poisonous character on the part of the user. . . . The preparations already named were sold in violation of this act [quoted in the report]. No "written prescription of a physician" was called for; no "record of the sale" was made, and "the name and residence of the person to whom it was delivered" was not reported in either instance. The word "poison" was not placed upon the bottle, and the "name of the antidote" was also omitted. In view of these facts, complaints were made out against the agents who sold these two preparations in Boston, and at the trial, which took place in December, both were convicted and fined under the aforesaid statute. Two other preparations, bearing the names of Soule's Eradicator and Delisle's Royal Cream, were examined soon afterward, and found to contain corrosive sublimate in about the same proportion or strength. Parties selling these articles were also convicted and fined under the same act.

The report by Dr. Bennett F. Davenport upon the examination of drugs is sufficiently interesting to be quoted at length:

Of the 400 samples of drugs which were submitted to me for examination during the past twelve months, 75, or 18.75 per cent, were found not to be of their proper standard quality as called for by the laws of Massachusetts relating to food and drugs.

Among the drugs examined were 7 samples of powdered opium, which, assayed by the official method, yielded the following per cents of morphia:

Between	12.5	and	12.6	per cent of	morphia,	1	sample.
"	12.4	"	12.5	"	"	1	"
"	12.3	"	12.4	"	"	1	"
"	12.0	"	12.1	"	"	1	"
"	11.6	"	11.7	"	"	1	"
"	11.3	"	11.8	"	"	1	"
"	10.7	"	10.8	"	"	1	"

Of tincture of op[illegible]m the 30 samples examined by the above method of assay were found to yield:

Between	1.20	and	1.30	per cent of	morphia,	7	samples.
"	1.10	"	1.20	"	"	10	"
"	1.00	"	1.10	"	"	8	"
"	0.90	"	1.00	"	"	5	"
"	0.80	"	0.90	"	"	5	"

The 1 sample of apomorphia, and the 2 samples of powder of opium and ipecac, which were examined, were all found to be of standard quality.

Of the 31 samples of simple salts of cinchona alkaloids, all were found to be of standard quality, while with the compound salts of citrate of iron and quinine the following yields were obtained upon assay of the scales:

Between	12	and	13	per cent of	alkaloid,	15	samples
"	11	"	12	"	"	10	"
"	8	"	9	"	"	1	"

while the single sample of the salt in solution proved to contain but the one-eighth part of the proper quantity of the alkaloid, this year's experience in this respect thus being similar to preceding ones.

With the 11 samples of tincture of nux vomica, the following results were obtained:

Between	2.50	and	3.00	per cent of	extract	in	3	samples.
"	2.00	"	2.50	"	"		5	"
"	1.50	"	2.00	"	"		1	"
"	1.00	"	1.50	"	"		1	"
"	0.50	"	1.00	"	"		1	"

There were 15 samples of iodoform, 7 of chloroform, 3 of alcohol, and 11 of stronger ether, all of which proved to be of proper quality. The 2 samples of distilled water proved to be simple tap water. Of the 10 samples of simple syrup 6 proved to be markedly deficient in sugar, averaging in fact hardly half of the proper amount. Of 9 samples of compound spirits of ether, but 2 had in any approximate degree the proper proportions of the very important ingredient, heavy oil of wine. Of 14 samples of spirits of nitrous ether, but 7 at all approached the proper proportions of ethyl nitrite, while the other 7 had less than one-quarter of that amount. The 17 samples of chloral hydrate were all of standard quality. Of the distilled spirits, whiskey and brandy, 4 samples were examined, and all, as has happened in previous years, have proved not to be of the special quality called for under the drug law for use in medicine. They had all, in short, been "improved" or manufactured by the arts of the rectifier, while the law in this particular instance allows of no other "improvement" in the straight distilled spirit from fermented grain or grape than that effected by nature alone in time.

In this connection an article in a recent number of the AMERICAN DRUGGIST upon an exhaustive report lately made by Prof. W. Fresenius in his *Zeitschrift für analytische Chemie* upon the composition and constituents of distilled spirits, is of interest. It says: "It is quite certain that only a very minute proportion of the distilled spirits, as they appear in the market, actually correspond to the definition of 'pure distillates from their respective fermented mashes.'" "As the addition of a small proportion of cane sugar is universally conceded to result in an improvement of the taste of brandy, it cannot on its own account be objected to. The question is only whether cognac thus 'improved' is still to be called or recognized as cognac or brandy, or whether it is to be classed among compound liquors (cordials, liqueurs), although commercial custom has up to the present retained the name of cognac for this 'compound' article. The German custom authorities, however, often fail to accept this view. In consequence thereof French exporters have adopted the plan of sending the pure 'unimproved' brandy by itself, and, separate from it, the requisite improving liquid (coloring matter, probably accompanied by certain aromatic essences)." He says further: "While the 'improvements' thus far outlined—addition of water, coloring matter, and sugar—are, to a certain extent, allowable, there is another manipulation which goes beyond this limit; this is the addition of spirit and the subsequent reduction with water, both of which are very commonly practised." With this addition of spirit begins a class, or series of changes, which form a gradual transition, indefinable as to the exact limits from the genuine to the adulterated brandy, and to its absolute imitation, in which latter there is not even a trace of the genuine distillate.

In proportion as the addition of spirit increases and the genuine distillate decreases, there is a diminution of the aroma, which is usually replaced by so-called cognac essences or other aromatic compounds; moreover, it becomes necessary to add more coloring matter and sugar. An interesting but not generally known fact has been communicated to Prof. Fresenius by Mr. Schmoelder, of Frankfort, namely, that the best cognac is not always obtained from the best vintages or "wine years," but that other ordinary and even inferior vintages may yield the best cognac. This is due to the fact that a less quantity of a strong wine is required to yield a given measure of brandy of a certain strength; thus the brandy obtained from a weaker wine may contain a greater concentration of the aromatic principles.

Prof. Fresenius further discusses at considerable length, taking the negative side, whether, as some authorities seem inclined to so regard it, a brandy which has been compounded or improved by the addition of aromatics and then redistilled, or has otherwise been manipulated, can still be justly regarded as a "distillation product from wine." He concludes that all other than that of the quality of the Pharmacopœia is to be considered as an artificial or manufactured brandy.

As to the quality of the cognac brandy when imported direct from France and sold, as the law directs, "as pure and unadulterated as when imported," the following extract from the December, 1888, report to the United States Department of State of O. Malmros, the United States Consul at Cognac, the commercial centre of the trade, may give some useful information. Cognac brandy, he says, is divided into two principal classes, "the champagnes," made from wine grown upon the plains cultivated from remote antiquity, and the "bois," grown on territory which until the present century mostly abounded in trees; this last is subdivided into "premiers," "fin," "bons," "ordinaire," and lastly "à terroir," which, on account of its strong, unpleasant taste, cannot be employed except in very small proportions for blending with other brandies, without injury to their flavor. The sandy, waste district producing this most inferior brand he says has suffered but little from the phylloxera, while in the remainder of the "bois" district its ravages have been formidable; but the vineyards of the "champagne" country have been entirely destroyed, and no champagne brandy has been distilled since the year 1878, when the phylloxera first made its appearance in the valley of the Charente River.

"Although the home consumption of cognac in France has not diminished at all during the past ten years, the production has hardly equalled the one-ninth of that of an average year before the phylloxera commenced, yet the exportations have declined only one-half. About 50 per cent of all the brandies exported to the United States are invoiced at 300 francs per hectoliter or under, while the average cost at which newly distilled pure brandy of standard strength may be imported into the United States, on the basis of 100 francs per barrel of wine of two hectoliters, M. Malmros states to be over 560 francs. From a comparison of these amounts one may, he thinks, infer the probable purity of the brandy imported. He has not, however, the slightest doubt that the great majority of the cognac merchants furnish as good and pure an article as the prices their customers are willing to pay enable them to furnish."

As whiskey was not among the distilled spirits examined by Prof. Fresenius, the following extract from a report by C. Richardson, a chemist of the United States Department of Agriculture, is instructive. His samples of "straight whiskey" were obtained directly from the United States bonded warehouse, through the United States Commissioner of Internal Revenue; his commercial samples were from reputable wholesale and retail dealers. He says: "Very few straight whiskeys are sold as such in America, it having been found desirable from a commercial point of view to mix the products of different fermentations or mashes which have a different flavor, to add artificial flavoring materials, such as tea, spices, and sugar, and often to reduce the strength with water." His results show that upon the average the commercial samples contained over twenty times as much total solids as did the natural ones. Herein his results agree with my own, as shown in previous reports.

Of wines five samples were examined, and among them three were found not to be the natural article called for by the standard of the drug law, but they had, like the samples of distilled spirits, been "improved."

In Spain, according to the royal decree of January 30th, 1888, concerning wines, based upon the report of the Royal Academy of Medicines and the Royal Council of Health, all wines are to be considered as adulterated which contain imperfectly rectified industrial alcohol, or impure alcohol from the residue or mash of grapes, which contain salicylic acid or other antiseptic substance, which contain any vegetable coal tar or other foreign coloring matter, which contain any glucose or starch sugar, or new wine, or any foreign glycerin.

The true sherry district is a territory of only about a dozen miles square, and is included within the towns of Port St. Mary's and Jerez, the chamber of commerce of which rules that all wines containing anything foreign to the pure must of the grape are to be deemed adulterated. The United States Consul at Cadiz, in his report to the State Department concerning the quality of wine shipped from that port, says of New York that "the largest quantity consumed there is of very low grade." And, "in general, the low-priced sherries are blended or compounded of four or more different sorts, viz.: alcohol; sweet wine, in which the fermentation has been checked by a large addition of alcohol; colored wine, cheap new wines of different kinds, and sometimes of a few gallons of older wine to help the whole to an older appearance."

Of 17 samples of pharmacopœial salts of bismuth and 7 of magnesia, 1 cream of tartar, 1 cocoa butter, and 27 U. S. P. acids, all proved to be of standard quality, as did also 24 different spices, 6 starches, 2 rhubarbs, and 10 lycopodiums.

One sample of olive oil proved to be mostly cottonseed oil, and one of musk proved to contain very little of that substance. Out of 13 samples of the pharmacopœial essential oils, all but 1 proved to be of fairly good quality, while out of 33 samples of the solid extracts 9 were not of standard quality.

Of honey 11 samples, of glycerin 14, and of lemon juice 1, were all good, while of pepsin 2 samples had only 1 of proper quality. Of proprietary articles, the following were examined: a hair dye which was found free from any injurious substance, while Radam's Microbe Killer appears to be principally a watery solution of burning sulphur fumes which had become decomposed into quite a strong solution of sulphuric acid. It seems to be flavored and partially disguised by the addition of some little sweet red wine. Its claim for originality and as a panacea for all ills would therefore seem to have only about the usual basis for such pretensions. Ozonos as a fairly strong solution of a permanganate has much more efficacy than originality as a disinfectant. The like could well be said of Modene, which was found to be one of the well-known sulphides which has been used for centuries for the removal of superfluous hair from the skin.

Valuation of Oil of Cloves.

H. Thoms recently read a paper on this subject before the Society of German Naturalists and Physicians, from which we take the following portions:

It may be safely assumed that *eugenol* is the principal valuable constituent of oil of cloves. This is at least the case so far as the therapeutic properties of the oil are concerned, for it is the eugenol which has been found quite efficacious (in form of benzoyl-eugenol) as a remedy in tuberculous affections. So far as the aroma of the oil is concerned, there is, indeed, another constituent which has a share in it, namely, the sesquiterpene which accompanies the eugenol.

Up to the present the methods for separating eugenol were so circumstantial that they could not well be used for a quantitative estimation. Thoms has succeeded in finding a new method which is very simple and easy, namely, by converting the eugenol directly into benzoyl-eugenol, for which purpose it is not even necessary to extract it first from the oil.

This compound, benzoyl-eugenol (or benzoate of eugenol), when pure, is a colorless and odorless solid ester (compound ether), in form of neutral crystals, of a faintly bitter taste, insoluble in water, easily soluble in hot, difficultly in cold alcohol, also soluble in chloroform, ether, and acetone. It is prepared by mixing eugenol with solution of soda or potassa, whereby the hydrogen of the hydroxyl group in the eugenol is replaced by the alkali metal. If now an equivalent quantity of benzoyl-chloride is added and the whole shaken, the formation of benzoyl-eugenol takes place quite rapidly, with evolution of heat. Upon cooling, the oil which has separated congeals, and can be obtained in colorless crystals by recrystallization from alcohol.

In order to show that the resulting product may be taken as a safe basis for the quantitative estimation of eugenol, the author quotes the following example, which at the same time shows the details of the process with quantities of ingredients:

Five grammes of eugenol, contained in a beaker holding about 150 C.c., are mixed with 20 Gm. of solution of soda containing 15 per cent NaOH, and then 6 Gm. of benzoyl-chloride are added. Both of the latter substances are used in excess, which is advisable. The whole is well agitated, which causes the mixture to become quite hot. After a few minutes the reaction is completed. When the mixture is cold 50 C.c. of water are added, a gentle heat then applied until the solidified ester has again separated in form of an oil, and the whole then allowed to cool again. The supernatant clear liquid is now filtered off, 50 C.c. of water are again added to the crystalline cake, heat applied until this fuses, the mixture cooled, the liquid filtered off, and the washing repeated once more. This washing removes the excess of soda as well as the sodium salt.

Any crystals adhering to the filter are returned to the beaker, the latter with contents dried at 101° C. and weighed.

Every 5 Gm. of eugenol [$C_6H_3.C_3H_5.OCH_3.OH=164$] correspond to 8.171 Gm. of benzoyl-eugenol [$C_6H_3.C_3H_5.OCH_3.O.OC.C_6H_5=268$]. The amount of the latter obtained by Thoms was 8.11 Gm., or 99.25 per cent of the theoretical yield.

On applying this process directly to oil of cloves, provision must be made to get rid of the sesquiterpene. This is done in the following manner:

After a portion of 5 Gm. of oil of cloves has been treated exactly in the manner just described for pure eugenol, the crystalline cake finally obtained is dissolved in a definite amount of warm alcohol of known strength, the solution allowed to crystallize, and the mother liquid separated by filtration at a definite temperature. The residue on the filter is dried at 101° C., and to it is added the weight of benzoyl-eugenol remaining in solution in the mother liquid.

This process is given by the author somewhat more in detail as follows:

Place the crystalline cake of benzoyl-eugenol finally obtained, while still moist, into a beaker, add at once 25 C.c. of alcohol of 90 per cent, warm it on a water bath, rotating it until solution has taken place, then remove the beaker from the water bath and continue rotating until the benzoyl-eugenol has separated in form of fine crystals, which requires only a few minutes. Now cool to 17° C., transfer the crystalline mass to a filter of 9 Cm. in diameter, and receive the filtrate in a graduated cylinder. About 20 C.c. will pass through. Enough alcohol of 90 per cent is then poured upon the contents of the filter to make the whole filtrate measure 25 C.c. The moist filter with contents is then transferred to a weighing bottle (in which the filter had previously been weighed at 101° C.) and the whole dried at 101° C. to a constant weight.

Twenty-five cubic centimeters of alcohol of 90 per cent dissolve, at 17° C., 0.55 Gm. of pure benzoyl-eugenol. This amount, therefore, must be added to the weight of the dried residue.

On examining a number of different specimens of oil of cloves by this method, the author obtained percentages of eugenol varying between 76.8 and 90.64, the average being about 80 per cent. It was also noticed that a higher percentage of eugenol was accompanied by a rise in specific gravity.—After *Berichte d. pharm. Ges.*, 1891, 278.

ESTIMATION OF FUSEL OIL IN ALCOHOL.

Among all the methods so far known to estimate the amount of fusel oil in alcohol, that by means of chloroform, devised by Roese, is the most practicable and reliable. Roese found that alcohol containing even traces of fusel oil increased the volume of a given amount of chloroform much more than the same amount of alcohol minus the fusel oil.

Various kinds of apparatus have been proposed to apply this test so that the results may be found by mere inspection of a scale of marks. The latest and probably best instrument devised for this purpose is that of Herzfeld, modified by Windisch.

It consists of a pear-shaped glass-stoppered bulb with graduated tube attached (Fig. 1), the whole being about 40 Cm. (15¾ inches) long and holding about 200 C.c.

The glass stopper of the globe is ground as accurately as possible. The inferior portion of the tube is somewhat expanded, and not graduated. Its capacity is about 20

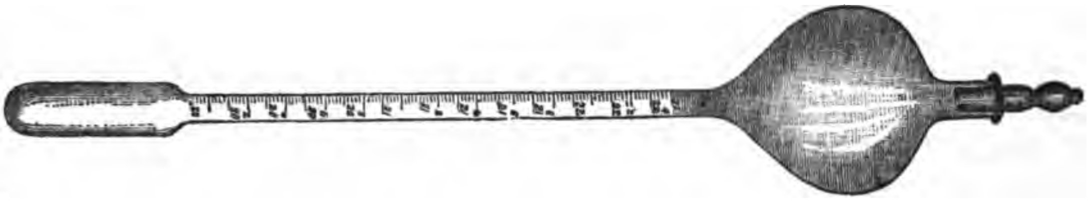


Fig. 1.

Fig. 2.

Windisch-Herzfeld Apparatus for Estimation of Fusel Oil.

Cm. The graduated portion has a capacity for about 2.5 C.c. of liquid, and is 18 Cm. (7⅛ inches) long. Every cubic centimeter of liquid, therefore, occupies a length of 7.2 Cm. (about 2 13/16 inches), and these are divided into 50 equal parts. Each division, hence, corresponds to 0.02 C.c. Other instruments are also made (by Geissler in Bonn) in which the space occupied by 1 Cm. is divided into 100 parts.

The alcohol, for which the apparatus is graduated, should have or be reduced to a percentage of 30 by volume, or to a specific gravity of 0.9656 at 15° C.

Alcohol of other specific gravity must be reduced to 30 per cent exactly, at 15° C.

The estimation of the fusel oil is then conducted as follows:

By means of a long-stemmed funnel (Fig. 2), a little more than 20 C.c. of the purest chloroform, at a temperature of 15° C., is introduced into the expanded (and perfectly clean and dry) lower portion of the apparatus shown in Fig. 1, care being taken that no chloroform comes in contact with the interior of the graduated tube. The apparatus is then introduced into a bath or chamber, where it is brought to exactly 15° C., and, by means of a little blotting paper contained in a glass tube, enough of the chloroform is withdrawn to make it measure exactly 20 C.c.

Next, 100 C.c. of the alcohol to be examined, previously reduced to 30 per cent, and at a temperature of 15° C., is introduced, and also 1 C.c. of sulphuric acid of a specific gravity of 1.2857. The latter is added to cause a more rapid separation of the chloroform, and to prevent the formation of a layer of bubbles at the point of junction of the chloroform and the dilute alcohol. The apparatus is left for ten minutes in the chamber to acquire the standard temperature, then carefully stoppered, and inverted so that the whole of the liquid contents may pass into the pear-shaped bulb.

Holding the apparatus in a cloth wet with water at 15° C., and keeping the finger on the stopper, it is shaken energetically during one minute, or, according to Sell, one hundred and fifty times.

Next the apparatus is restored to its normal position, and by rotating around its longitudinal axis and gently tapping, all the chloroform drops adhering to the interior of the pear-shaped globe are made to descend to the bottom of the tube. [If the apparatus is kept lying on its side, the stopper being kept perfectly tight, until the separation has practically been completed in the globe itself, and the latter is then gradually inclined so that the chloroformic layer will descend into the stem, there will be less difficulty in obtaining two clear layers.—ED. AM. DRUGG.]

The apparatus is then left for fifteen minutes in the chamber at 15° C., and the volume of chloroform then read off.

At the same time, while the above process is practised, another experiment is conducted, in precisely the same manner, but with alcohol known to be free from fusel oil. This is not absolutely necessary, but is advisable as a means of eliminating any error which may be caused by slight changes of temperature.

The fusel oil found in the alcohol, though probably present in shape of various amylic ethers, is always reported (according to the proposition made by Stutzer) as "amylic alcohol."

The table in the next column, by Sell, shows how much "amylic alcohol" is contained in 30 volumes of the alcohol tested. By multiplying this with 33.33, we obtain the quantity present in 1 liter of the anhydrous alcohol contained in the particular specimen tested.

If an alcohol to be examined contains less than 30 per cent by volume, it must be brought to this strength by the addition of a sufficient quantity of absolute alcohol strictly free from fusel oil.

After the apparatus has been used it must be washed out, first with water, then with alcohol, and finally with ether. It is then warmed so as to expel the vapor of ether.

[*Note by Ed. Am. Drugg.*—If the apparatus were provided at its bottom with a glass stopcock—a perfectly ground Geissler stopcock would answer—it could be much more easily emptied and cleaned.]

Increase of volume of chloroform.	Volume of fusel oil. Per cent.	Increase of volume of chloroform.	Volume of fusel oil. Per cent.
....	....	0.33	0.2188
0.01	0.0066	0.34	0.2255
0.02	0.0133	0.35	0.2321
0.03	0.0199	0.36	0.2387
0.04	0.0265	0.37	0.24539
0.05	0.0332	0.38	0.2520
0.06	0.0398	0.39	0.2586
0.07	0.0464	0.40	0.26524
0.08	0.05305	0.41	0.2719
0.09	0.0597	0.42	0.2785
0.10	0.0663	0.43	0.2851
0.11	0.07294	0.44	0.2918
0.12	0.0796	0.45	0.2984
0.13	0.0862	0.46	0.3050
0.14	0.0928	0.47	0.3117
0.15	0.0995	0.48	0.3183
0.16	0.1061	0.49	0.3249
0.17	0.1127	0.50	0.3316
0.18	0.1194	0.51	0.3382
0.19	0.1260	0.52	0.3448
0.20	0.1326	0.53	0.35144
0.21	0.1393	0.54	0.3581
0.22	0.1459	0.55	0.3617
0.23	0.1525	0.56	0.37134
0.24	0.15914	0.57	0.3780
0.25	0.1658	0.58	0.3846
0.26	0.1724	0.59	0.3912
0.27	0.17904	0.60	0.3979
0.28	0.1857	0.61	0.4045
0.29	0.1923	0.62	0.4111
0.30	0.1989	0.63	0.4178
0.31	0.20554	0.64	0.4244
0.32	0.2122	0.65	0.4310

After having been used three or four times the apparatus should be partly filled with nitric acid containing nitrous, and afterwards washed and cleaned as above directed.

The presence of various substances in the alcohol to be tested—for instance, essential oils, free fatty acids, etc.—materially affects the rate of expansion of the chloroform solution. This interference may, however, in most cases be avoided if (according to Stutzer and Reitmair) the alcohol is first distilled with caustic potassa. This causes the saponification of fatty acids, ethers, and certain essential oils, and the polymerization of aldehydes, and whatever foreign product then passes over into the alcohol is much less soluble in chloroform.

If such an alcoholic liquid is to be distilled, exactly 200 C.c. of it are measured off at 15° C. into a flask or retort, a few cubic centimeters of an alcoholic solution of potassa and some pieces of pumice are added, and distillation carried on to dryness. The distillate is collected in a graduated receiver and diluted with water to the previous volume—200 C.c. at 15° C. The alcoholic percentage of this is then determined, and a portion of it then brought to exactly 30 per cent, as above directed.—A. SCLAVO, in *Rivista di Merciologia* (Milano), 1891, 118.

◆

The Virchow Medal.—It is said that the medal presented to Prof. Virchow, at his recent jubilee, measures 118 Mm. in diameter, and is made from 18-carat gold. The front of the medal bears a bust representation of Virchow in relief. The back is adorned with an heraldic design, the allegorical figures of medicine and pathology, microscopes, books, skulls, and an Egyptian mummy.

Women Apothecaries in Russia.—The Russian Ministry of Education has recently sent a circular to all educational and medical commissions of the empire, informing them that every woman who has finished a course of a higher education may be engaged as a pharmaceutical apprentice in a drug store, and, by successive professional examinations, may attain the degree of "provisor," and become a pharmacist with the same rights and privileges as a man.

Detection of Nitrates and Chlorates.

Matthew Forbes communicates two new tests, one for nitrates in presence of chlorates, and one for nitrates in absence of chlorates, to the *Chem. News:*

1. *Nitrates in presence of Chlorates.*

Put together into a test tube—

Nitric acid,
Potassium chlorate,
Dilute sulphuric acid, and
Excess of copper foil.

Place the test tube in a beaker holding saturated solution of sodium chloride, and heat to boiling. The chlorate, being least stable, is first decomposed, the liberated chlorine attacking the copper and a greenish gas given off. At a higher temperature potassium nitrate is decomposed and attacks the copper, with formation of *brown fumes.*

2. *Nitrates in absence of Chlorates.*

Put into a test tube

Potassium nitrate,
Lead foil (shavings),
Hydrochloric acid, strong,

and heat. The potassium nitrate is decomposed and attacks the lead foil, with formation of lead nitrate, which is again decomposed by the hydrochloric acid, with formation of lead chloride, and this will be found as a white precipitate on cooling.

One advantage of this test lies in the fact that a nitrate can be detected in the presence of an iodide or bromide, because it is not dependent upon the formation of *brown fumes*, but upon a white precipitate of lead chloride. If a bromide or iodide is present, there will be free bromine or iodine, respectively, in addition to the lead chloride.

Alkaloidal Assay of Narcotic Plants.

Dr. O. Schweissinger has had occasion to investigate the alkaloidal yield of narcotic plants cultivated near Berlin. He reports on his results in the *Pharm. Centralhalle* (No. 41). The method of assay which he used was the following:

Ten grammes of the finely cut dry herb (aconite, belladonna, etc.) are put into a flask, digested (warm) over night with 200 C.c. of water containing 1 C.c. of diluted sulphuric acid, the mixture being occasionally agitated. Flask and contents having been weighed as soon as the latter had been introduced, any loss of weight which the apparatus has suffered during standing is made good by adding enough water to restore the original weight. The mixture is then allowed to cool, strained, the residue pressed, and the strained liquid measured. It will measure, say, 180 C.c. (which would correspond to 9 Gm. of herb). [The author evidently pays no attention to any possible increase of volume due to the solution of extractive matter in the liquid.—Ed. Am. Drugg.] The above-mentioned amount is now evaporated on the water bath under constant stirring, during which time the temperature is conveniently kept at 65° C. (149° F.). When the residue weighs about 20 Gm. the thin-fluid extract is poured into a measuring cylinder or flask of the capacity of 100 C.c., and alcohol then added up to the mark (100), which causes precipitation. The whole is then thoroughly shaken. (Without this precipitation by alcohol the subsequent treatment with chloroform or ether-chloroform, by shaking with these menstrua, becomes impossible, owing to the formation of emulsions.)

The evaporation may also be continued down to about 10 C.c., and alcohol then added to 50 C.c. In this case, however, the sediment settles much slower and filtration is more difficult.

After the sediment has been deposited the liquid is filtered. A measured portion of the filtrate is evaporated to 10 C.c., transferred to a separatory funnel, 1 C.c. of ammonia water added, and shaken with 40 C.c. of ether-chloroform (15 C.c. of chloroform + 25 C.c. of ether). Twenty cubic centimeters of the ether-chloroform solution are then removed, evaporated in a capsule, and titrated with one-hundredth normal acid.

This method had been published by the author before, but since it has given him so uniform and accurate results, he has now republished it.

The results obtained by the author are interesting also to us, since they show the average yield of alkaloid under several conditions.

	Amount of alkaloid in the air dry herb.	Amount of alkaloid in the anhydrous herb.	Amount of water in the herb.
Aconite herb, 1 year old, cultiv.....	0.360	0.417	13.55
" " wild (1890)............	0.496	0.585	15 2
" " cultiv. (1890)	0.496	0.602	17.74
Belladonna leaves, 1 year old, cultiv.	0.189	0.209	12.5
" " wild (1890)........	0.309	0.403	23.25
" " cultiv. (1890)......	0.132	0.172	23.5
Hyoscyamus " wild (1890)........	0 072	0.085	15.4
" " cultiv. (1890).....	0.063	0.070	9.85
Stramonium " wild (1890)........	0.289	0.319	9.6
" " cultiv. (1890)......	0.231	0.255	9.5

The Separation of Resin from Fatty Acids.

The detection of resin and its separation from fats and oils was at one time a very difficult problem to the analyst, and in many cases was impossible. Amongst many processes we have those of Henderson, Barford, and Gladding, the latter of which has found the greatest favor. It suffers from one very serious defect, however, and that is the correction for solubility of the fatty acids and silver salts in ether. This is a very variable factor, and, of course, is dependent on the nature of the fatty matter used in the fabrication of the soap. With small quantities of resin the error thus introduced may be as much as 20 to 30 per cent, but, of course, in soaps of high resin content—say 20 per cent—the error diminishes.

Mr. R. Williams (*Analyst*, vol. xv., p. 169) obtained very good results by the process; thus, in a soap which actually contained 30.0 per cent of resin he obtained 30.7 per cent, but no mention is made as to whether the amount remaining in the lyes, after precipitation of the soap, was determined. As to the simple detection of the resin, no doubt the best test is to boil the dry fat or fatty acids (10 drops) with 5 C.c. of acetic anhydride, cool, and add 2 drops of pure sulphuric acid (1.84 specific gravity), when the reddish-violet color due to resin is easily observed, 1 per cent of which can thus be detected.

It seems that all the above processes must make way for the admirable process of Twitchell (*Analyst*, October, 1891), who found that whereas fatty acids are, as is well known, converted into neutral ethers on passing dry hydrochloric acid gas into their alcoholic solution, the acids constituting resin are not attacked. The process obviously may be either gravimetric or volumetric, but chemists will prefer the latter on account both of speed and accuracy. The description of the process is as follows: 2.5 to 3 Gm. of the dried fatty and resin acids are dissolved in from 25 to 30 C.c. of perfectly absolute alcohol, and a current of dry hydrochloric acid gas passed in constantly. The flask containing the mixture must be kept cool by immersion in cold water. When the etherification is complete, the ethers separate and the gas is no longer absorbed. The flask is removed, corked well, and allowed to stand half an hour. The contents are diluted with about 100 to 125 C.c. of hot water, then cooled, transferred to a separatory funnel, and agitated with 75 C.c. of ether. The watery layer is removed and the ethereal layer washed with cold water till neutral to delicate litmus solution (twice always is sufficient). The ethereal liquid is received in a flask, the separator washed out with about 50 C.c. of neutral spirit, and the whole titrated by standard alcoholic alkali, using phenolphthalein as indicator. The alkali should be standardized by an accurate solution of half-normal HCl, and should be either one-fifth or one-half normal, according to the amount of the resin in the fatty acids. Taking the mean combining weight of resin at 347, then the percentage is easily calculated; it is reported both on 100 of dry fatty matter and on 100 of soap.

Twitchell's test experiments are eminently satisfactory, and I have now pleasure in confirming them by my own tests:

1. Sample of distilled fatty acids containing *no resin*, when treated as described, showed 0.7 per cent of resin.

2. The above distilled fatty acids, to which was added common resin to the extent of 22.5 per cent, showed, when treated as above described, 23.3 per cent of resin, which, after deducting the 0.7 per cent found in No. 1, gives exactly 22.5 per cent, or the amount which was added.

3. Soap made from palm oil and other fats, but no resin, gave 0.8 per cent resin.

4. Another soap, made from fatty matter of unknown origin, but no resin, gave 1.0 per cent resin. This, it should be observed, was of a dark color, and evidently contained some altered or oxidized oily matter.

5. Soap which showed by Gladding's test 6 per cent of resin, gave 4.9 per cent by Twitchell's process.

The above results are all that may be desired, and I have now to show how the process may be still further shortened without any sacrifice of accuracy. This can be done by leaving out the washing, and dissolving in alcohol direct. A few drops of methyl orange are then added, and alkali till neutral to this indicator; phenolphthalein is then added, and the titration completed as before. The alkali required in the first case is for the neutralization of the free hydrochloric acid, and is of course neglected. That required to neutralize with phenolphthalein as indicator is of course due to resin, and is calculated as such.—J. ARTHUR WILSON in *Chem. News*, October 23d.

A New Indicator for Estimating Minute Amounts of Alkali.

F. MYLIUS and F. FÖRSTER base their method on the extreme delicacy of iod-eosin (erythro-eosin) as an indicator, when used in an entirely novel manner. The commercial preparations of erythro-eosin require purification before they can be applied to this purpose, since they contain small quantities of impurities (almost insoluble in ether), which communicate a blue-violet tint to alkaline solutions. For purification the commercial dye is dissolved in ether saturated with water, filtered, and the filtrate shaken up with dilute solution of caustic soda. The erythro-eosin passes into the ether, and from this it is precipitated as a brick-red sodium salt by the further addition of caustic soda solution. The precipitate is filtered off, washed with spirit, and crystallized from hot alcohol, the impurities remaining behind in the mother liquor. For titration, $\frac{N}{1000}$ solutions are used, which must be made with *pure, neutralized water*. Water kept in vessels of inferior glass soon shows signs of impurity; $\frac{N}{1000}$ solutions, however, if kept in vessels of good glass, are stable for some time. The titration is performed in a stoppered flask: 50 to 100 C.c. of the aqueous fluid to be investigated are shaken with 10 to 20 C.c. of ether containing in solution not more than 2 Mgm. of the purified erythro-eosin per liter. Such a solution is almost colorless; but if free alkali be present, the aqueous layer, after shaking, appears of a rose-red color. Upon neutralization it again becomes colorless. The titration is best ended by adding alkali until a faint rose color is produced, 0.2 C.c. being deducted from the total quantity of alkali used. The influence of carbon dioxide on the result is practically *nil*, hence the carbonates in water may be easily and conveniently estimated by this process, the amount of acid used being the measure of the combined carbon dioxide. In like manner can be demonstrated the solubility of calcium carbonate in water; the decomposition which ensues on heating solutions of ammonium salts shown, the absolute neutrality of salts secured, etc. Examples are given showing that salts, even when obtained from first-class houses, are seldom absolutely neutral. The neutrality of zinc salts, otherwise so difficult, is easily ascertained by this process. The oxides of magnesium, cadmium, manganese, nickel, and cobalt behave like zinc oxide; those of iron, aluminium, and chromium act as free acids. Since silver and platinum form insoluble compounds with the indicator, the testing of the salts of these metals is rendered difficult. The method is useless for the estimation of vegetable acids. For ascertaining smaller quantities than the equivalent of 0.1 Mgm. of sodium hydroxide, the authors propose a colorimetric modification of their process. This is, however, much too elaborate and complicated for ordinary practical work.—After *Berichte d. chem. Ges.*, 1891, 1482.

Pharmaceutical Arithmetic.

THE following simple rule is given by A. Frankenstein, in the *Pharm. Zeitung*, for preparing a liquid of a specified density by mixing two liquids, one of higher, the other of lower specific gravity.

The underlying principle is, of course, the same as that on which other methods are based. But the form of statement is different.

The principle is, that the volumes of the two liquids to be mixed are to each other *inversely* as the respective differences of their specific gravities from that to be produced.

Supposing two liquids are given:

a—having the spec. grav. 1.190
b— " " " " 0.972

and there is to be prepared

c—having the spec. grav. 1.125

We write:

$$\begin{array}{ccc} a & & b \\ 1.190 & & 0.972 \\ & \diagdown\ c\ \diagup & \\ & 1.125 & \\ & \diagup\ \ \diagdown & \\ 0.153\,(a) & & 0.065\,(b) \end{array}$$

These two numbers denote *volume*. The two liquids, therefore, must be mixed in the proportion of

0.153 or 153 volumes (liters, etc.) of *a*

and

0.065 or 65 " " " of *b*.

Of course, it is assumed that there is no contraction when the liquids are mixed.

Since the weight of the respective volumes may be found by multiplying each volume by its corresponding specific gravity, we obtain:

0.182 parts by weight (182 kilos, etc.) of *a*
0.0632 " " (63.2 " " of *b*,

or

100 Gm. of *a*

and

34.7 " " *b*.

If there is an alteration of volume—as for instance, when alcohol and water, or very strong and very weak alcohol, are mixed—then it is preferable to substitute percentage by weight for the specific gravity in the first given formula. The differences between these and the percentage sought will then at once give the quantity, by weight, of the two liquids required. For instance,

a—alcohol of spec. grav. 0.820
b—alcohol of spec. grav. 0.940

are to be mixed so as to produce

c—alcohol of spec. grav. 0.900.

By consulting the tables of the Pharmacopœia, we find the following equivalents for alcohol of the above-mentioned specific gravities:

a (0.820) 91%; *b* (0.940) 39.8%; *c* (0.900) 58.05%.

We therefore put:

$$\begin{array}{ccc} a & & b \\ 91 & & 39.8 \\ & \diagdown\ c\ \diagup & \\ & 58.05 & \\ & \diagup\ \ \diagdown & \\ 18.25\,(a) & & 32.95\,(b) \end{array}$$

That is, we mix 18.25 parts by weight of *a* with 32.95 parts by weight of *b*, and thus obtain a liquid containing 58.05 per cent by weight of alcohol, corresponding to the specific gravity 0.900.

Assay of Cinchona.

Prof. H. Beckurts, of Braunschweig, has found that the most accurate and reliable method of valuation of cinchona barks is that which was some time ago proposed by W. Haubensack. As this method is at present being tested by various experts in this country, and ought to be more generally known, we publish it here (after *Pharm. Rundschau*).

Place 20 Gm. of cinchona, in *very* fine powder [No. 100], into a 500-C.c. flask, add [a mixture of] 10 C.c. of official ammonia water and 20 C.c. of official alcohol, shake thoroughly, and then add 170 C.c. of [stronger] ether. After two hours remove 100 C.c. of the clear liquid portion to a separatory funnel, add 50 C.c. of water and 2 C.c. of diluted sulphuric acid, and shake well. Draw off the acid, yellowish, aqueous liquid, add to it a few drops of solution of soda so as to liberate the alkaloids, and then shake the mixture with 30 C.c. of chloroform. Draw off the clear, chloroformic layer into a carefully tared, small flask, and again shake the aqueous layer with 20 C.c. of chloroform. Unite the chloroformic liquids, distil or evaporate off the chloroform, and dry the residue at 100° C. to a constant weight.

The quantity of alkaloids found multiplied with 10 represents their percentage in the cinchona examined.

Anacardic Acid as Hair Dye.

The pigmentary properties of the viscous liquid secreted under the pericarp of the cashew nut (*Anacardium occidentale*) has long been known, and the liquid has been stated to yield a good indelible stamping ink. According to Gawalowski (*Zeit. Oest. Apoth.-Ver.*, September 10th, p. 485), the ammonium salt of anacardic acid ($C_{22}H_{32}O_{3}$), one of the constituents of the liquid, can be advantageously used as a means of darkening the hair. For this purpose the hair is first moistened with an aqueous solution of the salt and afterwards combed with a comb that has been dipped in a solution of ferrous sulphate; or the ammonium anacardate may be applied in a pomade or oil, and instead of the solution of ferrous sulphate an oleate of iron may be employed. It is stated that after a short exposure to the air the hair so treated assumes a more or less dark color, which is tolerably persistent, but nothing is said as to the exact tint. It is obvious that anarcardic acid used for this purpose must be quite free from the acrid cardol that accompanies it in the nut. Gawalowski directs that it should be prepared by treating the residue from the evaporation of an ethereal extract of the crushed pericarp with water as long as the washings showed traces of tannic acid, then dissolving it in 15 to 20 parts of alcohol, shaking the solution vigorously with freshly precipitated lead hydrate, filtering and washing the precipitate with alcohol, and decomposing the lead salt so obtained with freshly prepared sulphide of ammonium, and filtering. Upon strongly cooling the filtrate, which contains the ammonium salt of anacardic acid and excess of ammonium sulphide, and treating it with sulphuric acid, the acid separates at once as a soft mass, which, after being pressed between filter paper, is dissolved in ammonia and then remains soluble in water. According to Dymock (*Veg. Mat. Med. W. Ind.*, p. 199), a tar obtained in roasting the nuts, and largely used in India for tarring wood, contains about 90 per cent of anacardic acid and 10 per cent of cardol.—*Pharm. Journ.*

Preparation of Bromoform.

The following rapid method for preparing bromoform is published by G. Denigès in the *Journ. de Pharm. et Chim.* (September, 1891, page 243):

Solution of Soda (spec. grav. 1.330)	100 C.c.
Distilled Water	200 "
Bromine	20 "
Acetone	a sufficient quantity.

Place the solution of soda and the water into a flask of the capacity of about 1 liter, surround it with cold water, and add to it the bromine. This will at once fall to the bottom and should be made to dissolve only gradually in the liquid, so as to avoid raising the temperature. When the bromine is all dissolved and the liquid of a uniform yellow color, gradually add acetone until the liquid becomes colorless. About 10 C.c. will be required. There will quickly be produced a lower layer of liquid, consisting of bromoform, almost entirely colorless.

The product is washed several times, then removed with a pipette. As it is very heavy, it is easy to separate it from water. By filtration it is obtained pure enough for almost any purpose.

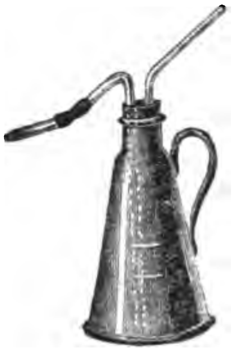
To render it chemically pure it is rectified, and that portion collected as pure bromoform which comes over between 148° and 152° C. (298°–306° F.).

The reaction takes place in two steps as follows:

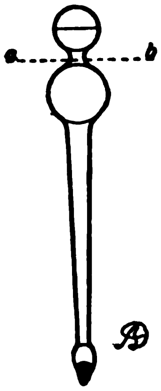
$$\text{I. } \underset{\text{soda}}{6NaOH} + \underset{\text{bromine}}{6Br} = \underset{\text{sodium hypobromite}}{3NaBrO} + \underset{\text{sodium bromite}}{3NaBr} + \underset{\text{water}}{3H_2O}$$

$$\text{II. } \underset{\text{sodium hypobromite}}{3NaBrO} + \underset{\text{acetone}}{CO(CH_3)_2} = \underset{\text{bromoform}}{CHBr_3} + \underset{\text{sodium acetate}}{NaC_2H_3O_2} + \underset{\text{soda}}{NaOH}$$

Theoretically, 100 parts of bromine yield nearly 53 parts of bromoform. In reality, only about 35 parts will be obtained. But the rest of the bromine is not lost. It may be recovered as bromide, etc., from the mother waters.



Büchner's Wash-Bottle.



Rey's Burette Float.

A NEW WASH BOTTLE.

Büchner recommends wash bottles, or rather wash pots, made of enamelled iron, to be used instead of those made of glass, as the latter are so apt to be broken. The form selected resembles that of Erlenmeyer's flasks. Prof. Dittmar also suggests to use wash flasks made of pure nickel, or of copper thoroughly silvered inside.

We presume that vessels coated like the well-known agate or granite ware would find a ready sale for this purpose.

A NEW BURETTE FLOAT.

Erdmann's float is useless for opaque or very dark-colored liquids, since the mark upon it cannot be seen under these circumstances. H. Rey has devised a float which is applicable in all cases, as the mark is upon a separate bulb which is never immersed. The float is weighted with just enough mercury to cause it to sink in the liquid up to the neck *a*, *b*.—After *Berichte*, 1891, 2098.

A New Burette without Stopcock.

C. **Elschner** recommends to use for such liquids which are apt to corrode stopcocks or rubber tubing (closed by a pinchcock), the following arrangement:

A plain Mohr's burette, without stopcock, is drawn out, at its outflow end, to a fine point. Into its mouth is fitted a cork bearing a glass or rubber tube descending by the side of the burette, and provided with a stop- or pinchcock at about the same level at which it would have been in the burette tube itself. The burette is first filled by temporarily closing its orifice with a small piece of rubber tubing pinched together or closed by a glass rod. When the cork bearing the extra tube is inserted, the orifice of the burette is released, and its contents may then be drawn off in a flow or in single drops by regulating the stop- or pinchcock in the secondary tube.—*Chem. Zeit.*, No. 52.

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EDITORIAL.

A STUDY of the existing literature on heavy oil of wine, as well as of the various methods so far proposed for its preparation, published by Prof. Frederick B. Power, of Madison, Wis., in the *Pharm. Rundschau* (October), shows the opinion long held by many, viz., that the addition of the heavy oil of wine is, to say the least, unscientific and quasi-empirical, is correct. Not only do the best authorities on the subject disagree in their statements as to the composition and properties of the "heavy oil of wine," but it is even doubtful in some cases which of the so-called "oils of wine" some writer or author meant. It is safe to say that we know practically nothing about the real composition of the substance which the Pharmacopœia directs us to use in making "Hoffmann's Anodyne," and which some hypercritical authorities on therapeutics assert is the chief valuable ingredient. Singular to say, "Hoffmann's Anodyne" has for a century and more been extensively made *without* oil of wine, and used on the Continent of Europe, and all the existing medical literature of Continental writers up to the present time is based upon a simple mixture of alcohol and ether, otherwise known as *Spiritus æthereus* or *Spiritus ætheris.* We are aware that it was originally prepared in a different way, by a method which probably caused the distillate to contain variable quantities of the *Oleum vitriolis dulce*, but the literature of therapeutics contemporaneous with this method of preparation is no longer regarded as authoritative. The anodyne virtues of the mixture of ether and alcohol, *without* the oil of wine, have up to the present been recognized by all competent authorities, and there is probably no physician on the Continent of Europe who does not employ "Spiritus Æthereus" (*without* oil of wine), freely, for precisely the same purposes for which the American or British physicians employ—or think they employ—the *Spiritus Ætheris Compositus* (*with* oil of wine). Yet prominent authorities here stand up as champions for the "heavy oil of wine." We will scarcely err if we assert that seven-eighths of all the Compound Spirit of Ether ever sold in this or the British market contained either only a small proportion of real "heavy oil of wine," or merely some so-called "light oil of wine," or consisted of a mixture of a by-product in the manufacture of ether (containing certain substances analogous to oil of wine) with alcohol. And nevertheless the universal verdict as to the efficiency of the preparation has not been undermined.

Since it is, with our present knowledge, impossible to isolate the oil of wine from the "Compound Spirit of Ether," and to apply to it any reliable tests of identity and purity, the recommendation made by Prof. Power, that it be dropped as unscientific, unless its nature, properties, and therapeutic effects are clearly established, and it is possible to test it for identity as well as purity, appears to be reasonable.

IN the recently completed new edition of his well-known "Manuale pharmaceuticum" (or "Promptuarium"), Hermann Hager has introduced a uniform nomenclature for alkaloids and for so-called neutral principles, the necessity of which appears to have suggested itself to him through an increased familiarity with the United States and British Pharmacopœias. Having observed that both of the latter had adopted the terminations *-ina* (English *-ine*) for alkaloids, and *-in* (English *-in*) for neutral principles, he also adopted these terminations, but just reversed their use. For alkaloids he chose the ending *-inum*, and for neutral principles *-ina*. We thus have: *chininum*, *pilocarpinum*, *morphinum*, etc., and *paraffina*, *glycerina*, *terpina*, *cantharidina*, etc. We regret that he did not see his way toward accepting the application of these terms among English-speaking nations, but we realize the difficulties which were in the way. The termination *-inum* has been that of the Latinized name of alkaloids ever since this class of substances became known, and such terms as *chininum sulphuricum*, *morphinum aceticum*, etc., etc., have become so thoroughly household words, not only among professional men but among the people at large, that a change in nomenclature appeared impracticable. This being once decided, so far as alkaloids were concerned, there remained nothing else but to select the termination *-ina* for the neutral principles.

In this country and in England the case is different. Ever since it was recognized that alkaloids partake of some of the properties of alkalies—such as soda, potassa, ammonia—it has been customary to make them end in *a* or *ia*, this termination being purposely chosen to express the analogy. Thus we had *morphia*, *quinia*, *strychnia*, *brucia*, etc., which are still in common use. For euphony's sake, in some cases, *-ina* was used—as, for instance, *narcotina*, *papaverina*, *picrotoxina*, etc.

When the last Committee on Revision revised the pharmacopœial nomenclature, it was deemed necessary to provide for some external sign of distinction between the two classes (alkaloids and neutral principles). And in doing this the committee availed itself of the fact that for some time previously the tendency of English-speaking chemists had been towards the termination *-ine* for alkaloids. Thus it had become customary to say *morphine*, *quinine*, *strychnine*, etc. Taking advantage of this fact, the committee simply turned these terms into Latin by replacing the *e* through *a*, thus making the names feminines of the first declension. And in order to be consistent, the termination *-in* (Latin *-inum*) was applied to neutral principles. The new British Pharmacopœia also accepted these views and followed the example of the U. S. Pharmacopœia. It is not likely that the terms as at present accepted, here or in England, will soon be changed again. The discrepancy in nomenclature will, therefore, likely remain for a long time to come.

As announced by us a short time ago, the new improvements made by Raoul Pictet in methods of refrigeration are applied on a manufacturing scale for various purposes, among them for the purification of chloroform. Even the purest chloroform of the market was reported, when frozen by great cold, to leave behind a mother liquid containing various impurities which had hitherto escaped detection. A short time ago a number of chemical manufacturers of Germany agreed to put Pictet's chloroform upon their new lists, and in fact have done so. The cost of the new brand is, however, high, being four times that of chloroform responding to all the tests of the German Pharmacopœia, and over one-third higher than that made out of chloral, which had hitherto been regarded as the purest kind. A correspondent of the *Pharm. Centralhalle* (No. 35) very properly asks that the manufacturers (Raoul Pictet & Co., of Berlin, formerly of Geneva) throw some light upon the nature of the impurities which occur in chloroform, and which are removed by the freezing process. As these impurities were formerly unrecognized and unknown, and, if really existing, must have been encountered by the above-named manufacturers, working on the large scale, in tangible quantities, the profession has a right to inquire into their nature. We find this demand fully justified, and think that no credence deserves to be given to the superiority of the new chloroform until we know exactly what the impurities are which the latter has been deprived of.

We learn that even this new chloroform requires the addition of a small amount of alcohol, without which it does not keep well. Hence the theory that deterioration of chloroform unprotected by alcohol is due to minute quantities of impurities, is either wrong (if Pictet's chloroform is really a purified and pure article) or else its deterioration is not due to any impurities at all.

DURING a trial at Bremen of a dealer accused of having sold artificial "cognac" under this name, our present information regarding French cognac has been, if not materially increased, at least amply confirmed—viz., that there is scarcely any French cognac in the market that is derived purely from wine or grapes, and that there is none at all that has not gone through some process of dilution or improvement.

Up to the time when large French wine districts commenced to suffer from the devastations of the phylloxera, "cognac" was chiefly derived from grapes or wine exclusively. The cognac stills of Charente, however, always turned out a distillate containing so much alcohol—66 to 80 per cent—that it was, as such, unfit for consumption. It had to be diluted with low wines—up to that time likewise generally obtained from the same source as the strong distillate—and the product, thus brought to an alcohol percentage of about 55, was then allowed to season in the cask, and put on the market as "cognac." The destruction of thousands of hectares of vineyards, from about the year 1875, in various parts of France, revolutionized the cognac industry. Where any genuine distillate from wine is at all produced, it is no longer diluted with wine spirit, but with alcohol obtained from potatoes, beets, and other sources. The quality of the alcohol thus used is, however, unexceptionable. Most in demand is German alcohol, derived from potatoes.

The case against the Bremen dealer was decided as an infringement of the laws against adulteration, and the court ruled that "cognac" should be held to mean a "distillate from wine." This ruling is very well, so far as it goes; but we fear it does not go beyond the walls of the court-room, except on paper.

California brandies—not all, but a goodly number—at the present day come much nearer to what genuine cognac or brandy really is than the French product. The California brandies, however, possess a peculiar, fruity odor and taste which render them unpalatable to many persons. This flavor is supposed to be due to the "newness" of the soil on which grapes are cultivated, and is expected to become gradually less pronounced or modified.

THE author of a paper recently presented at a pharmaceutical meeting mentioned as one of the advantages of his process for pharmaceutical assaying compared with another, that the necessary apparatus for the latter cost $3.92, while *his* required only an expenditure of $1.45; and by substituting a saucer costing $0.05 for an evaporating dish costing $0.35, the expense could be still further reduced to $1.15.

Has the practice of scientific pharmacy become so unremunerative that anybody can seriously offer such an argument in connection with such a subject? If it is so, why not *borrow* the saucer and save the miserable nickel? Indeed, if the prospective but impecunious analyst has the intelligence to warrant him undertaking an assay process at all, why may he not make his graduated cylinders out of broken lamp chimneys and bottles with the aid of borrowed standards, and thus eke out his miserable income?

But when information respecting chemical percentages is gleaned from such sources and by such means, we may admire the ingenuity of the experimenter, but prefer to rely upon results obtained with better apparatus.

In the domain of pharmaceutical assaying there would appear to be still sufficiently important matters to engage attention without asking pharmaceutical associations to consider whether one can save 30 cents of the cost of an evaporating dish by paying 5 cents for a saucer instead.

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Detection of Traces of Copper in Distilled Water.—According to H. Thoms, distilled water often contains traces of copper which escape detection by the usual reagents, such as ammonia or potassium ferrocyanide.

Such traces may be detected by dissolving in the water some potassium iodide. The water will acquire a yellowish color if only 1 part of copper in 200,000 parts is present. Of course, the water must contain no other substance capable of decomposing the iodide or liberating iodine.—After *Pharm. Centralh.*

CORRESPONDENCE.

VOLUMETRIC ESTIMATION OF ACETATES.

Editors American Druggist.

GENTLEMEN: In your issue of October 15th I find a letter by Chas. Caspari, Jr., criticising my paper on the "Volumetric Estimation of Acetates," which was read before the Missouri Pharmaceutical Association and reprinted in the September 1st issue of the AMERICAN DRUGGIST.

The first column of the article deserves no reply, as it is merely an argument in favor of making our normal volumetric solutions on the basis of the hydrogen equivalent as against the molecular weight, and is evidently out of place in a letter correcting some errors which have crept into type. I clearly defined which was meant when I stated that "10 C.c. of the $\frac{N}{2}$ sulphuric acid should exactly neutralize 10 C.c. of volumetric solution of soda, U. S. Ph." The volumetric solution of this strength contains 49 Gm. H_2SO_4 per liter, and gives better results with methyl violet as an indicator than a weaker acid such as Dr. Caspari proposes. The turn of color is not so readily perceived as with other indicators (phenolphthalein, etc.), and it becomes necessary to lessen the error resulting from the tardy appearance of the blue color by using a strong volumetric solution and operating upon enough substance to bring the amount of acid well into cubic centimeters on the burette. Dr. Caspari's letter overlooks this when it lets 1 C.c. = 1 per cent in titrating Liquor ammonii acetatis. Here an error of $\frac{2}{10}$ C.c. would be one of $\frac{2}{10}$ per cent, while in my paper it would be an error of $\frac{2}{100}$ per cent.

The errors in the original paper were made either by the printer or my assistant in copying the manuscript. In Liquor ammonii acetatis 1 C.c. should correspond to $\frac{2}{10}$ per cent instead of 2 per cent. The error in the acetate of iron preparations is as much a mystery to me as it doubtless was to Dr. Caspari. I append the same table with all corrections made:

Plumbi acetas	Weigh	9.46	Gm.	Each	C.c.	acid	= 2	per	cent	of acetate.
Liq. plumbi subacetatis	"	13.7	"	"	"	"	= 1	"	"	"
Potassii acetas	"	4.9	"	"	"	"	= 2	"	"	"
Sodii "	"	3.4	"	"	"	"	= 4	"	"	"
Zinci "	"	5.92	"	"	"	"	= 2	"	"	"
Liquor ammonii acetatis	"	38.5	"	"	"	"	= 2/10	"	"	"
" ferri "	"	7.76	"	"	"	"	= 1	"	"	"
Tinct. " "	"	7.76	"	"	"	"	= 1	"	"	"

I take this opportunity to add a remark to my paper on "Elderberry Juice," which appeared in the AMERICAN DRUGGIST February 1st. At the time of writing the paper my experiments for using elderberry as an indicator in estimating phosphates were incomplete. I find it to turn at same number of cubic centimeters as rosolic acid or when the formula is Na_2HPO_4.

CLAUDE C. HAMILTON.

KANSAS CITY, Mo., October 30th, 1891.

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NEWS AND NOTES.

MICHIGAN.

THE annual meeting of the State Pharmaceutical Association, held in Ann Arbor, passed off pleasantly and without incident. The report of the Examining Board showed a total of 3,628 registered pharmacists and 550 assistants now in the State. The number examined during the year was 400, of which 157 were given first-class certificates and 111 assistants' certificates. The Board made complaint against 76 persons for violation of the pharmacy law, and succeeded in convicting 15, 9 cases being still unsettled. This makes a total of 50 convictions since the law has been in force, the fines paid amounting to $620. The prevailing sentiment seemed to be that the pharmacy laws should be made more stringent and comprehensive. It is to be hoped this will be done, for the sooner the incompetent, the unscrupulous, and the ignorant are weeded out of the ranks of pharmacists the better it will be for the profession and the community at large. It is a noticeable fact, in connection with the high standard of pharmaceutical education demanded in Michigan, that this State suffers less than almost any other from the evils of cutting. If the standard is raised, may we not expect to see a still further elimination of this evil? Undoubtedly. Force out the unqualified and unprincipled, and the qualified pharmacist will be fully able to take care of himself. Allow them to remain, and the entire profession will become demoralized and poisoned by their influence.

MR. FRANK YOUNG, a popular pharmacist of Detroit, died November 1st at his residence. He had a store on the corner of Monroe and Antoine, and was very well known and liked in the eastern part of the city. Mr. Young was a prominent member of the Knights of St. John, who will attend his funeral in a body. He was a graduate of the Philadelphia College of Pharmacy, and was but 28 years old at the time of his death.

During the recent disastrous fire which swept over the village of Carsonville, the store of DR. SMITH was damaged to the amount of $500.

DR. J. F. KEABLES, of Decatur, who had been seriously ill for the past six months, died at his home November 1st.

The Michigan Pharmaceutical Association has elected as president H. G. Coleman, Kalamazoo; vice-presidents, Stanley E. Parkill, Owasso; L. Paule, St. Ignace; A. S. Parker, Detroit. Chas. Parsons and Wm. Dupont, of Detroit, are chosen secretary and treasurer.

The National Wholesale Druggists' Association, at its meeting in Louisville last month, elected as president William A. Robinson, Louisville; vice-presidents, John McKesson, New York, H. T. Clark, Lincoln, J. H. Rhodes, Chicago, Charles Hubbard, Buffalo, Henry B. Gilpin, Baltimore; secretary, A. B. Merriam, Minneapolis; treasurer, S. M. Strong, Cleveland; board of control, R. D. Noyes, St. Paul, Alex. H. Jones, Philadelphia, J. W. Rankin, Atlanta, Geo. R. Hopkins, St. Louis, J. A. Tilman, Boston. The Association adopted the plan of the American Pharmaceutical Association for regulating the sale of proprietary remedies, and chose Montreal as the place for the next meeting.

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TWENTY-SECOND ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS. Pp. 588, 8vo. Boston, 1891.

The subject of water supply is most elaborately treated, and numerous observations of the sources of supply throughout the State, with chemical and microscopical examinations of the water, are included. Quite as important may be considered the detailed advice given to various cities and towns upon the subject, as well as the general suggestions as to the selection of sources of supply. This chapter alone should render the report most valuable to those who contemplate a system for furnishing water to communities elsewhere.

The report of analysts upon foods and drugs is but slightly inferior in interest, and may be studied with profit. Surely the money expended by the Commonwealth upon the maintenance of its Board of Health is a profitable investment when it produces such manifest results.

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An Extemporaneous Platinum Crucible.—When a platinum crucible ought to be employed for combustion, and none is at hand, a good substitute for it may be made, according to H. N. Warren (*Chem. News*), from a piece of platinum foil, which is folded twice like a plain filter. It can easily be cleaned and used over and over again as long as the folded edges remain unbroken.

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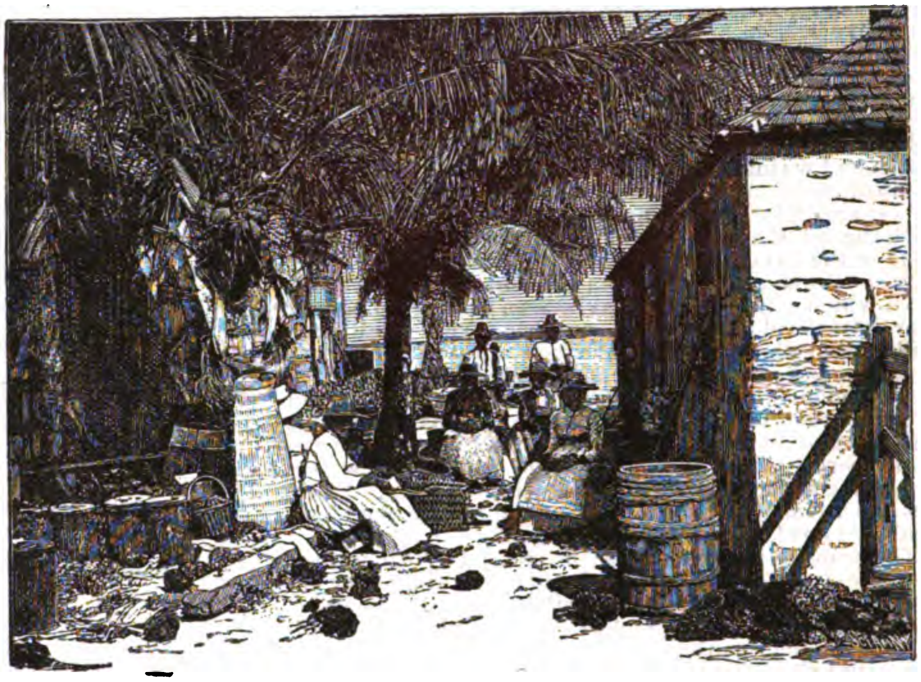
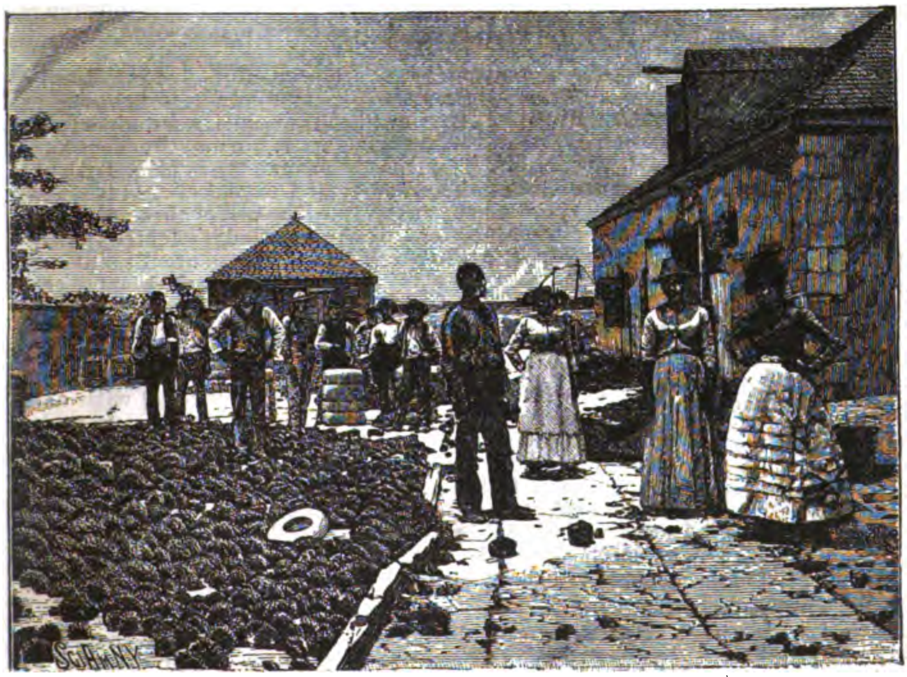
THE SPONGE FISHERIES OF THE BAHAMAS.

BY J. F. COONLEY.



Clipping Sponges.

THE sponge fisheries of the Bahamas cover a large extent of territory, give employment to about six thousand men and boys, and are a source of revenue to the colony larger than any other industry pursued there. There are no seasons of the year but sponges may be taken, and are taken, by the men engaged in the pursuit. Sponges are always plenty at one place or another around these islands. They are always growing, and the supply is never short if they are sought for in the right localities. There is also always a lively demand for good sponges, and at prices that are not liable to change materially from year to year. The quantity shipped from these islands during the year 1890 was 623,317 pounds, the local value of which amounted to $31,500. I have often asked this question: What becomes of all the sponges? The immense quantities sent from here seem more than enough to supply the world, yet outside of the sponge-producing region we see very few, if any, going to waste. Whatever becomes of them, the demand is about the same from year to year, the supply never fails, and prices maintain a very even scale.



A Sponge Yard.

There are about 550 schooners and sloops of from 5 to 20 tons and about 2,500 open boats engaged in the fisheries, giving constant employment to the 6,000 men and boys engaged. These employees are all colored, mostly natives of the islands, and follow this industry all their lives; in most instances commencing as boys, growing up in it to manhood, and continuing at it as long as they are able to stand the fatigue and labor. A number of small open boats besides those attached to the vessels accompany the crafts. The owners of these give a share of the proceeds of the sponge they obtain to the owners of the vessels for towing them to the sponging grounds and allowing them ship room. The sponge they obtain is kept separate from the ship's cargo.

The method of obtaining the sponge from the sea bottom is by a staff with hook at the end, by which the sponge is torn from its place of attachment. At greater depths than can be reached by the hook, the sponger will sometimes dive for them, but this is seldom resorted to. The water glass is an indispensable article in locating the sponge on the sea bottom. It is a wooden cône with a glass set in one end and open at the other. It is about eighteen inches long, and by placing the glass end just beneath the surface of the water and looking in the top the operator has a clear view of the bottom of the sea, and with his staff in the hand not engaged in holding the water glass, he thrusts the staff down. When he sees and selects the sponge, he hooks it or tears it from its native bed.

The sponge, when taken from its resting place, has not the same appearance as when prepared for use. All its fine qualities are hidden. It is heavy, and contains a matrix of dark gelatinous matter with a dense external pellicle. This gelatinous substance is got rid of by maceration and washing, and the residuum is our well-known companion of the bath. On placing any of these forms of sponge, before cleaning, in a tub of salt water, and with the aid of a lens observing the central portion of the body of the sponge, one will notice something like a fine woven cobweb projecting from the central part outward, from which refuse matter may be seen issuing. Looking more attentively, an immense number of very small pores will be seen, through which the food, infusoria and other organisms, is taken. The more powerful the lens the more wonderful the internal structure is shown to be, and the more surprising will the operations of nature in this particular case appear. With a powerful glass one can easily perceive the flagella or whips lashing the water, producing the inflowing and outflowing currents. Without the use of a magnifying power the sponge would appear as a dead, inert mass.

The propagation of sponges, the method by which they increase, is not only interesting, but is certainly very curious. At certain periods there will be formed projections from the surface, yellowish-looking buds, which grow until they detach themselves, when they are driven out by the outward flow caused by the flagella or whips lashing at the water. These yellowish-looking buds then appear as helpless atoms of jelly. But this is not the case. These tiny germs or atoms have a motion that we would not suspect. With a lens we see the whole of these minute objects covered with minute cilia, which vibrate and propel it through the water until, arriving at sufficient distance from the place of its birth, it settles down on the bottom, loses its cilia, and grows—becomes a sponge.

After the taking of the sponge from its native bed they are all assorted and the different kinds and grades separated. They must be trimmed, or clipped, as it is termed, baled, pressed, and encased in canvas to ship.

The sponging grounds of the Bahamas are well worth visiting. There is scarcely a more beautiful or interesting sight than a view in the clear limpid waters surrounding these sea-girt islands on a warm day. The marine flora, the various forms of coral scattered in rich profusion at the depth of a few fathoms, is something marvellous for its varied and extreme beauty, and is not surpassed in any part of the globe. In a tideway of medium flow it can be viewed to the best advantage. The graceful, undulating sea fans, with a variety of sea anemones with the colors of the rainbow, the branching coral, some fashioned, one would almost believe, with human skill and artistic taste, with the most beautiful colored fish sporting in these fairy grottoes, the water being so transparent that the bottom can be distinctly seen at a depth of over 20 fathoms, all combine to make a vision which for beauty, novelty, and variety is very fascinating, and once seen will not easily be forgotten.

For information in reference to the growth, propagation, and habits of the sponge, also for statistics, etc., in this connection, I am under many obligations to the Hon. Judge Camplejohn, of Nassau, N. P., who has made a study of this subject for years. The local price of sponge ranges from 25 cents to $1.20 a pound, the fine wool sponge being the most expensive, while the yellow and glove sponges are the cheapest.—*Scientific American.*

Iodeosine as a Delicate Indicator of Alkaloids.

In our last number we published an abstract of a paper by F. Mylius and F. Foerster on a new indicator (see p. 352). The authors have quite recently sent a communication on the same subject to the *Chemical News* which gives additional information, and which, moreover, points out the proper way in which the indicator is to be used, viz., causing its tint to pass into an ethereal layer. The authors write:

Among the artificial colors which have recently come into use [as delicate indicators] are the eosines, as their halogenous power probably depends on their high proportion of halogen. Their fundamental substance, fluoresceine, as also ordinary eosine, has been introduced into volumetric practice. Our experiments have shown that iodeosine, or erythrosine, is especially adapted for the determination of small quantities of alkali, but under peculiar conditions which render a preliminary investigation of its properties necessary.

Iodeosine, or erythrosine, has the composition $C_{20}H_8I_4O_5$; it is a commercial product, and is especially used in cotton dyeing and paper staining.

The pigment, as supplied by the Baden Aniline Works, is a brick-red powder, soluble without fluorescence, but with a rose color in dilute alkalies. From this solution it is reprecipitated by supersaturation with acid. The commercial preparation contains as impurity small quantities of matters almost insoluble in ether and in a dilute solution of pyridine. The alkaline solution of these impurities has a violet-blue tone. For its purification the commercial substance is dissolved in aqueous ether, and removed from the filtered solution by shaking out with a dilute soda lye; from the alkaline solution the brick-red sodium salt is precipitated by a stronger soda lye. The salt is filtered, washed with spirit, and recrystallized from hot alcohol. As the solution cools it is obtained in well-developed, almost rectangular tables, with a green surface color, whilst the impurities remain in the mother liquor. Pure iodeosine has a decidedly lighter color than the commercial product; it is almost insoluble in absolute ether, benzol, petroleum ether, chloroform; more readily soluble in acetone, in alcohol, and in aqueous ether. In aqueous alkali the purified coloring matter dissolves, as it might be expected, with a more yellowish tone than the crude product. Supersaturated solutions can be obtained by shaking up the recently precipitated amorphous coloring matter with ether. If the solution is allowed to stand, the excess of color is deposited in small orange crystals of a rhombic form.

Iodeosine has not hitherto been employed in alkalimetry; if it is used in the ordinary manner, it behaves as a bad indicator. If to an alkaline solution we add a trace of iodeosine and neutralize with normal hydrochloric acid, the change from rose to orange takes place with undesirable tardiness, and a decided excess of acid is necessary to complete the reaction. The use of this color as an indicator is possible only if the titration is effected *in presence of ether in a shaking vessel.* The neutral point can then be distinguished very sharply, as the slightest excess of acid on shaking causes the trace of eosine present to pass from the aqueous into the ethereal stratum. The aqueous liquid then appears colorless.

Titration with Millenormal Solutions.—In the determination of large quantities of alkali, effected with normal and decinormal solutions, there is no cause to make use of the process just mentioned, the employment of the ordinary indicators in aqueous solutions being then more convenient. In the ordinary manner we may, as is well known, effect titrations with centinormal solutions with some accuracy. But this is the limit. By means of *iodeosine and ether* it is possible to effect titrations with millenormal solutions with the greatest distinctness.

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Bromides and Phthisis.—M. Féré has found that saturating a person or animal with bromides predisposes to tuberculosis.

[ORIGINAL COMMUNICATION.]

ACETANILIDE FOR THE PRESERVATION OF HYPODERMIC SOLUTIONS.

BY THOMAS J. KEENAN.

Of the various chemical bodies known to exert an inhibitory action on the development of the fermentative and fungoid growths which occur in simple solutions of the alkaloids prepared for hypodermic use, and in solutions of organic chemicals generally, acetanilide, from the consideration of its non-irritating properties and its efficiency in weak solution, in my opinion easily takes first place.

Glycerin, alcohol, salicylic acid, boric acid, chloroform, and a host of others, chiefly derivatives of the aromatic hydrocarbon series, have been at different times strongly recommended for their individual properties, and used with favorable results ; but experience has demonstrated that all have their objectionable features.

Glycerin is seldom used on account of its slightly irritating properties and the increase of density which follows its addition.

Alcohol is irritating and liable to cause precipitation.

The chief objection to the use of salicylic acid, apart from its readiness to react with other chemicals, and one which may be overcome at the discretion of the pharmacist, is the strength in which it is directed to be used.

This is stated by the compilers of the Addendum to the British Pharmacopœia, and by other official bodies, to be a saturated solution representing about 1 grain in 1 fluidounce, thus affording a concentration considerably in excess of the amount actually required ; solutions prepared with it in the proportion of ⅛ grain in 1 fluidounce keeping equally well with the stronger ones, besides being less liable to cause the precipitation which sometimes takes place in concentrated solutions of morphine or similar bodies on long standing.

Boric acid is only suitable for a limited application, being, however, especially well fitted for the preservation of cocaine solution when the latter is intended for local application.

Chloroform, in the form of Aqua chloroformi (N. F.), is generally considered the most useful of any of the preservatives yet proposed, and is perhaps more widely employed than any other in the list here given. It is non-irritating and convenient of use, besides being free from the danger of reacting with the substance it may be added to. It is, however, less reliable, in my opinion, from its evanescent nature, than either salicylic acid or acetanilide, particularly when evaporation is assisted by the frequent removal of the stopper in extensive dispensing.

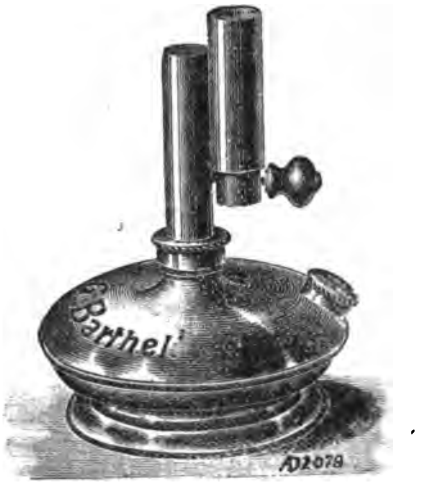
NEW YORK, October 12th, 1891.

A NEW ALCOHOL OR BENZIN LAMP.

Gustav Barthel, of Dresden, has put on the market two improved burners, one for alcohol and another for benzin, which may be used like Bunsen burners, but have an advantage over the latter as they are capable of giving a higher temperature. The accompanying cut illustrates the alcohol lamp. This is made of metal, has a lateral capped orifice for filling, and bears a central tube, closed on top, which carries a solid wick. This is not itself ignited, but only serves to draw up the volatile liquid from the reservoir. To the wick tube is attached a second tube, the burner tube proper, which receives the vapors from the wick. The burner tube contains a wire diaphragm which can be raised or lowered by means of the screw shown in the cut, whereby the size of the flame can be regulated.

When the lamp is to be used, a lighted match or other source of heat is applied to the wick tube, so as to drive some alcohol vapor into the burner tube, where it is then ignited. It will then continue to draw up alcohol vapor of its own accord.

The lamp works very efficiently. One litre of water can be raised by it from 15° C. to 100° C. in eight and three quarter minutes with an expenditure of 26 Gm. of alcohol.



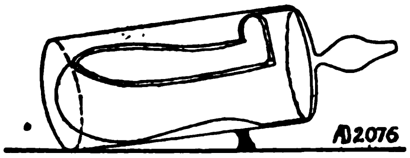
[It is best to use a low-grade alcohol of about 75 to 80 per cent in such lamps, as stronger alcohol evaporates too rapidly without producing any advantage.]

The benzin burner is similarly constructed, but has some special features required by its greater inflammability.

NEW WEIGHING BOTTLE.

The ordinary form of weighing bottle, with ground-in stopper, has the disadvantage that when a finely powdered substance is emptied out of it a portion is liable to adhere to the ground portion of the neck, and, upon reinsertion of the stopper, to be driven out and lost. To remedy this the author proposes a weighing bottle of the form illustrated.

The bottle has a little foot which supports it in an inclined position. The hollow, scoop-like expansion of the stopper allows the removal of its contents to be effected without a chance of touching the ground portion of the bottle.



The new form is very convenient for the determination of hygroscopic moisture; the bottle and its contents are placed in the water bath and the stopper is slightly withdrawn. Since the substance is exposed in a thin layer, drying takes place with great rapidity.—C. Mangold in *Zeit. f. angew. Chem.*, 1891, 441.

A Drug Explosion.—A student of pharmacy in Hesse was called upon to put up a prescription containing a 20 per cent solution of chromic acid, salicylic acid, and water. He put the crystals of chromic acid directly into the alcohol, whereupon an explosion took place, and the unfortunate student was severely burned in the eyes.

An Antiseptic Adhesive Pomade—The following is employed in the Hôpital Saint-André, in place of adhesive straps, to keep the protective dressings in close apposition to the skin:

℞ Oxide of Zinc	gr. x.
Chloride of Zinc	gr. xlv.
Gelatin	ʒ x.
Water	℥ ij.

It is also found very serviceable in dressing wounds of the face.

Tests of Purity of Olive Oil.

WE have received from Messrs. James A. Hayes & Co., Boston, a pamphlet entitled "An Examination as to the Reliability of Certain Tests for Determining the Purity of Olive Oil. By Professor S. Canizzaro, Vice-President of the Senate of Italy, and Dr. G. Fabris, Analytical Chemist of the Italian Customs," which forms an important contribution to our knowledge of there actions of olive and other oils. The inquiry and investigations were caused by the fact that a certain invoice or sample of olive oil had been declared adulterated by Dr. B. F. Davenport, of Boston, on the strength of certain reactions hitherto much relied on for showing the presence of foreign oils in olive oil, one of the reactions being given officially in the U. S. Pharmacopœia. No question is raised as to the correctness of Dr. Davenport's observations, since Dr. Fabris, who made all the experiments, obtained the same color reactions as the former. But being in a position where he could secure an unlimited number of samples of undoubtedly genuine olive oil from the principal centres of production, he had better facilities for conducting the investigation and testing the reactions themselves critically than any chemist in this country.

The following is an abstract of the contents of the pamphlet:

In order to establish how far two tests—the one by concentrated sulphuric acid and the other by the basic subacetate of lead—which Dr. Bennett F. Davenport, of Boston, U. S., has employed in order to determine whether a reputed olive oil be pure or not, I was instructed by Professor Stanislao Canizzaro to carry out a series of comparative experiments on oils with the above and other processes having a like object.

These experiments were made upon olive oils and seed oils, some of which had been actually made by myself or in my presence, and others had been procured from different sources. The oils thus examined may be classified and described as follows:

1. Five samples of Tuscan olive oil made in my presence.
2. Four samples of olive oil made in the presence of the Italian Minister of Agriculture.
3. Sixteen samples prepared by Dr. Fabris himself.
4. Nineteen samples, all absolutely genuine, procured from various localities.
5. Ten samples of different origin, furnished by Messrs. S. Rae & Co., of Leghorn, for whom the present investigation was made. One of these samples was stated to be from the same oil which they exported to the United States in 1890, and which had there been declared spurious.

THE SULPHURIC ACID TEST.

Dr. Davenport, in a letter to Messrs. S. Rae & Co., dated Boston, September 27th, 1890, says: "The standard for olive oil, as laid down by our State Anti-Adulteration Law, is that of the United States Pharmacopœia, a work which you doubtless already have or know of.

"The principal point in which some samples of reputed olive oil differ from that standard of quality and purity is, that when a few drops are let fall, as directed, upon the surface of strong sulphuric acid, a *dark-brown* color is developed almost immediately, which should not be within three minutes. The presence of some other than pure olive oil is thus indicated."

It is, therefore, a question of observing the color an oil will assume when in contact with concentrated sulphuric acid as a reagent; this is practically the same test that Heydenreich proposed so long back as 1841. The latter, however, prescribes that a drop of sulphuric acid at 66° B. should be let fall upon 8 or 10 drops of oil placed in a watch glass standing upon a sheet of white paper, and to observe the color produced both when the oil is at rest and when shaken.

Dr. Davenport, instead, follows the directions of the Pharmacopœia of the United States, which are as follows: Olive oil: "If 5 drops of the oil are let fall upon a thin layer of sulphuric acid in a flat-bottomed capsule, no *brown-red* or *dark-brown* zone should be developed, within three minutes; at the line of contact of the two liquids." While as regards cottonseed oil, in the same authority it is stated that "Concentrated sulphuric acid instantly renders it dark *reddish brown*."

In a small, flat-bottomed porcelain capsule I placed as much chemically pure sulphuric acid at 66° B. as to form a surface of the size of a silver dollar; upon this I dropped from a pipette 5 or 6 drops of oil. The oil gradually spread itself out so as to form a film upon the surface of the acid, in doing which just three minutes passed. I observed the color which developed itself gradually as the oil spread itself slowly over the surface of the acid.

In order to decide whether the conditions under which the experiment is carried out may not have some influence upon the coloring produced, I repeated the same experiment, but varying somewhat the conditions. Thus I observed that if 10 or 12 drops, instead of 5, were allowed to fall upon the acid, a tint tending to *green* was produced in genuine olive oils which during the first experiment had not changed color.

In general I observed that when much oil is added a more intense color is produced. On the other hand, if 1 or 2 drops of concentrated sulphuric acid are dropped upon 10 drops of oil, according to Heydenreich's formula, in olive oils, a *greenish* tint is produced, which becomes more intense if more acid be added, and particularly so if the mixture be shaken.

I also made the same experiment using chemically pure sulphuric acid of 60° B. In this case the oil spreads itself very slowly over the surface of the acid, and it does not assume any color for a considerable time.

When, instead, I employed the sulphuric acid of commerce, the colors which resulted to the different olive and seed oils were identical with those produced by the chemically pure sulphuric acid of 66° B., only more intense.

The same phenomenon is observable if sulphuric acid of 66° B. containing some nitrous acid be used; that is to say, the color indications are rather more intense than in the case of the perfectly pure acid.

SUBACETATE OF LEAD TEST.

On page 204 of the U. S. Pharmacopœia is to be found the formula for preparing *Liquor plumbi subacetatis*, which has been adopted by Mr. S. S. Bradford, Ph.G., as a test for olive oil.

Mr. Bradford states that this solution, added in equal volumes, "possesses the peculiar property of saponifying at once when shaken in the cold with pure olive oil."

"Now, if a sample tested contains any cottonseed or other oil, saponification will not take place, no matter how long it is allowed to stand or how much it may be shaken; if there is any cottonseed oil in the sample a *red* color will be produced."

Dr. Davenport, in the letter before mentioned to Messrs. S. Rae & Co., says that some samples of olive oil, "when shaken up with a like volume of *Liquor plumbi subacetatis* and allowed to stand for some twelve hours, develop the *orange-red* color so characteristic of cottonseed oil. Standard olive oil will not develop any color at all, and will, moreover, form a much more perfect emulsion with the lead solution than most other oils. The above lead test color I consider very reliable down to a very small percentage of cottonseed oil."

I prepared this reagent, scrupulously following the directions above given, and I tested its action upon the various samples of olive and seed oils in the following manner:

Into a test tube 16 Cc. long and with an external diameter of 18 Mm. I put 10 Cc. of oil and 10 Cc. of the reagent. I then shook the tube for about two minutes, and afterwards allowed it to rest, observing the color indication and the appearance of the contents, both immediately and on the expiration of twelve hours.

I experimented also with another reagent, somewhat similar to the foregoing, which has been communicated to me by Messrs. S. Rae & Co., as follows: "Prof. Robert Meade Smith, University of Pennsylvania, suggests the following test for detecting cottonseed oil in olive oil when present to the extent of over 5 per cent:

"Agitate 10 Cc. oil and 10 Cc. of ethylic ether in a test tube, add 5 Cc. of strong solution of neutral lead acetate and then 5 Cc. ammonium hydrate solution, and agitate again. If cottonseed oil is present an *orange-red* color is produced, particularly in the upper layer."

I now proceed to describe the methods followed by me in applying the other chromatic tests and processes which served for comparison with those already recorded:

HAUCHECORNE'S TEST.

Into a test tube place 6 Gm. of the oil and 2 Gm. of a mixture of 3 parts of chemically pure nitric acid and 1 of water. Shake the whole for about two minutes, and watch the color of the mixture. Then place the test tube in a bath of boiling water, leave it there for not more than fifteen or twenty minutes, and again observe the color.

Olive oils which are perfectly pure become decolorized or else turn pale-green after being shaken with the acid and before being heated; after heating they resume their natural color—occasionally they are somewhat lighter. But they should not take a color tending to orange.

Only old oils which have suffered by long keeping may take a color more or less tending to orange. Moreover, olive oils treated by this test become completely solidified after twelve hours.

Seed oils, after being agitated with the acid and before being heated, either become colorless or change to a yellowish-red or red. When heated they rapidly change to *orange-yellow* in the case of peanut oil, or to dark *red-brown* in the case of drying oils.

Mixed oils assume graduated colors, according to the proportion of seed oil present in the olive oil.

BRULLÉ'S TEST.

Place in a test tube 1 Gm. of albumen, perfectly dry and divided into very fine powder, with 2 Cc. of nitric acid (prepared in the same way as for the Hauchecorne test) and 10 Cc. of the oil. Heat uniformly, without agitating, and when the acid begins to boil incline the tube and agitate cautiously, continuing to heat the tube until the albumen is seen to be dissolved, which takes place after a few seconds of ebullition.

Then the color of the oil is observed, which should not be sensibly changed in pure olive oils; at the most it may become a little paler, while it will vary from an *orange-yellow* to *brown* for the different seed oils, and graduate between these in the case of mixed oils. After this treatment also, olive oils solidify in the course of some hours.

BECHI'S TEST.*

This test is now recognized by long experience as very specific for discovering the presence of cottonseed oils when mixed with olive oil. It is carried out as follows:

Prepare two solutions, viz.:

No. I.

Nitrate of Silver, in crystals	1 Gm.
Alcohol, 98 per cent	200 Cc.
Ether	40 Cc.
Nitric Acid	0.1 Gm.

No. II.

Amylic Alcohol	100 Cc.
Colza Oil	15 Cc.

Ten cubic centimetres of oil, 1 Cc. of the silver solution No. I., and 10 Cc. of the solution No. II. are placed in a test tube and well agitated. Half of this mixture is poured into another test tube and kept as a standard for comparison. The first tube is then heated in a boiling-water bath for a quarter of an hour, and then the color indications are observed. Pure olive oil should *not* take a *brown* color; but cottonseed oil and mixtures of it with olive oil rapidly change to a *red-brown*, more or less dark.

I must call attention to some precautions to be taken in order that the results may not be uncertain. The alcohol and the ether employed in making the solution No. I. must be chemically pure. The colza oil which enters into the solution No. II. must be previously filtered two or three times through paper, in a water oven at boiling point; 10 Cc. of the solution No. II., heated for a quarter of an hour in a water oven at boiling point with 1 Cc. of the solution No. I., should retain their natural color.

The oil to be subjected to the Bechi test should be filtered through paper once, and, in some cases, even twice, in a water oven at boiling point, because at times even perfectly pure olive oil will take a slight brownish tint under the Bechi test when not properly filtered; but this does not occur when it has been filtered in a hot water oven.

On the contrary, cottonseed oil and mixtures of it with olive oil retain the property of turning *brown* under the Bechi test, even after the hot filtration.

Above all, it is necessary to bear well in mind that cottonseed oil and the mixtures of it with olive oil will rapidly assume a brown color when heated in contact with this reagent, viz., after a few minutes' interval; while pure olive oils, which also occasionally turn slightly brown under this test before filtration, only do this after being heated for about a quarter of an hour in a hot water stove as described.

[The author does not seem to be aware that Bechi's test has been declared fallacious when applied to cottonseed oil which has previously been subjected to heat.—ED. AM. DRUGG.]

MILLIAU'S TEST.

The reaction is analogous to Bechi's, and serves the same purpose, viz., to detect cottonseed oils.

Twenty Gm. of oil, placed in a porcelain capsule, are heated on a water bath, together with 30 Cc. of an alcoholic solution of caustic potassa (20 per cent of potassa in alcohol of 70 per cent), and shaken frequently until complete saponification takes place. The heating is continued for about fifteen minutes longer. Then about 250 Cc. of cold water are added, and the soap is decomposed by diluted sulphuric acid, taking care not to add too large an excess of the latter. Then about 10 Gm. of the fatty acids that have thus been separated, but which are not yet melted, are taken and dissolved in pure alcohol of 90 per cent in a test tube; next 2 Cc. of an alcoholic solution of silver nitrate (3 Gm. in 100 Cc. of alcohol of 90 per cent) are added, and the mixture heated, during fifteen minutes, in a water bath at 90° C.

In the case of pure olive oil, the solution itself, and the precipitate from it contained in the tube, exhibit no color. But cottonseed oil takes a dark-brown or chestnut color, and the mixtures in which it is present a brown color more or less dark, according as the cottonseed oil is present in greater or less proportion.

Pure olive oil may take a slight brownish tint, but only when the alcohol is not perfectly pure, and when the heating has been protracted beyond fifteen minutes. Cottonseed oil and mixtures containing it become colored as soon as they feel the action of the heat.

SCHNEIDER'S TEST.

This is stated by Schneider to be specific for the oils of the Cruciferæ. It is made as follows:

Shake 5 Gm. of the oil with 10 Cc. of ether, add 20 to 35 drops of a saturated solution of nitrate of silver in alcohol, and shake. Then set it aside in a dark place.

After some time, either a precipitate is observable, or a brown color if a cruciferous oil is present. In the case of pure olive oil, neither color nor precipitate appears.

BAUDOUIN'S TEST.

This is specific for oil of sesame, which has the property of imparting a crimson color to a solution of sugar in concentrated hydrochloric acid.

The reagent is made by dissolving 1 Gm. of powdered sugar in 100 Cc. of hydrochloric acid of specific gravity 1.180 at 15° C.

To 1 volume of this solution add 2 volumes of the oil, and shake well. After a few minutes set the test tube aside, when the contents will separate into a lower, aqueous one, which will be crimson colored, and an upper, oily layer.

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* This test was communicated to us by Prof. E. Bechi in 1883 (see NEW REM., 883, 314). He has improved it since then, as given above.—ED. AM. DRUGG.

Concerning these tests, and some others which are yet to be mentioned, the author makes the following statements as regards their application to samples of pure olive oil or other oils in his possession.

1. *Sulphuric Acid Test.*—Of fifty-four samples of olive oil, twenty-four gave no color indication, but remained of a light yellow color with a slight greenish tint during the time required for the drops of oil to spread over the surface of the acid (about three minutes). These samples, therefore, stood the test of the U. S. P.

On the other hand, nine samples turned to a dark-yellow, almost orange color, and the other twenty-one became deep orange or reddish-brown.

The seventeen samples of seed oils examined showed these colors more or less; the cottonseed oils were found to show them hardly any more than some samples of olive oil of known purity.

The sulphuric acid test, therefore, is of no value whatever, except when it gives an absolutely *negative* result.

2. *The Subacetate of Lead Test.*—This was found untrustworthy, since some samples of even confessedly genuine cottonseed oil (from the U. S.) failed to give any color reaction with the lead solution.

3. *Hauchecorne's and Brullé's Tests.*—These were found to give much more concordant results. Nearly all the samples of olive oil which would have been condemned as impure by the sulphuric acid or acetate of lead test, appeared to be genuine under the above-mentioned tests.

4. *Bechi's and Milliau's* tests always give negative results when applied to pure olive oil, if the test is carefully made as above described.

5. *Baudouin's* reaction is a specific one for oil of sesame, and Schneider's reaction one for oils of the Cruciferæ (mustard, etc.). Oil of olives containing more than 10 per cent of these oils will respond to the tests.

6. *Renard's test for peanut oil* is made by saponifying 10 Gm. of the oil with alcoholic potassa, decomposing the soap with hydrochloric acid, dissolving the fatty acid in 50 Cc. of alcohol of 90 per cent, precipitating with subacetate of lead, washing the precipitate, and then extracting it with ether until the oleate of lead is eliminated. The residue is then decomposed by hydrochloric acid, the fatty acid dissolved in 50 Cc. of warm alcohol of 90 per cent, and the solution allowed to cool, when arachic acid will crystallize out in scales resembling mother-of-pearl.

[Several tests, mentioned by the author, which were found unreliable, are omitted here altogether.]

7. *Iodine Number* (according to Hübl).—To determine this, the following solutions are required:

(*a*) Dissolve 25 Gm. of *pure* iodine in 500 Cc. of pure alcohol of 95 per cent and 30 Gm. of mercuric chloride in 500 Cc. of alcohol. Filter the latter, if necessary, then mix the two solutions and let the mixture stand twenty-four hours.

(*b*) A carefully prepared decinormal solution of sodium hyposulphite.

(*c*) A 10-per-cent solution of pure potassium iodide (free from iodate) in water.

(*d*) Gelatinized starch solution.

(*e*) Pure chloroform.

The determination is made as follows:

Weigh 0.2 to 0.3 Gm. of the oil into a bottle (provided with glass stopper) of about 200 Cc. capacity, and add 10 Cc. of chloroform for solution. Next add 20 Cc. of the solution of iodine, shake well, and set the bottle aside for two hours in a cool and dark place. In another similar bottle treat 10 Cc. of the same chloroform with 20 Cc. of the iodine solution, but without the oil, in a similar manner. After two hours add 15 Cc. of the solution of potassium iodide and 150 Cc. of water, and then determine the free iodine by the hyposulphite solution, using starch as indicator, in the usual manner.

The difference between the number of cubic centimetres of hyposulphite required to decolorize the free iodine, and the iodine originally added, represents the quantity of iodine absorbed by the oil, and this amount is then expressed as referring to 100 parts of oil.

According to Hübl and Moore the iodine number of olive oil is 82.8–83.0. But other analysts have found figures varying between 80 and 85.1. In most cases the number lies between 80 and 83. In one case Dr. Fabris found it anomalously low, viz., 75.23, but this oil was old and rancid. It is, however, not justifiable to condemn an olive oil which shows a high iodine number, if other tests show it to be genuine. But if an oil has an iodine number between 80 and 83, and complies with the other tests, it may be regarded as genuine. And the nearer the figure found is to 80 the more positive is the proof.

8. *Iodine Number of the Free Fatty Acids.*—This is a trifle higher than that of the oil itself, being about 81 to 84.

9. *The Saponification Number.*—This represents the quantity of potassium hydrate (KOH) in milligrammes required to saponify 1 Gm. of oil. It is determined by heating 2 to 3 Gm. of the oil, on a water-bath, with 25 Cc. of a solution of potassium hydrate—3 Gm. in the litre, made with pure alcohol—until complete saponification takes place, and then titrating the excess of alkali with half-normal hydrochloric acid, using phenolphthalein as indicator. Another portion of 25 Cc. of the alcoholic potassa solution (without the oil) is also titrated with the acid. The difference between the two shows the amount of potassa which has entered into combination.

The saponification number of olive oil varies between 191 to 196, or, according to G. Fabris, between 186 and 190, and is usually about 190. As compared with cottonseed oil, the saponification number is valueless, as the two are practically identical.

10. *Maumené's Reaction.*—When 15 Cc. of olive oil and 5 Cc. of sulphuric acid of spec. gr. 1.840 [original says 66° B.] are mixed together at a temperature of 20° C., the temperature of the mixture will rise to 32°–37° C., generally to between 33° and 35° C.

11. *The Specific Gravity.*—This is very uniform, being, in the case of olive oil, between 0.916 and 0.975. In the case of cottonseed oil, newly made, 0.9245; old, winter oil, 0.9235; old, summer oil, 0.9250.

The oil which had been held to contain cottonseed oil, since it responded to the sulphuric acid test of the U. S. Pharm.—and which was the principal cause of the investigations made by Dr. G. Fabris—gave the following results with the tests upon which the greatest reliance is placed by the analyst:

Specific gravity	0.9165
Iodine number	80.75
Iodine number of fatty acids	82.90
Saponification number	190.01
Maumené's test, temperature rises to	33.5° C.
Fatty acids melt at	24°–26° C.
“ “ solidify at	21°–19° C.
Baudouin's test	no change of color
Schneider's test	“ “
Bechi's test	no dark color
Milliau's test	“ “
Hauchecorne's test	retains yellow color
Brullé's test	“ “ “
Renard's test	no arachic acid

The author of the pamphlet is clearly of the opinion that the purity or genuineness of olive oil cannot be established on the basis of one or only a few tests, or can be impugned on equally defective testimony. The oil must be shown either to comply or to fail to comply with a number of tests of acknowledged reliability. It may happen that a genuine oil will occasionally be met with which behaves anomalously with one or a few of these tests, yet it will be found generally to respond to all the others. If an oil responds to all, or at least all the really important ones, it must be pronounced genuine.

* * *

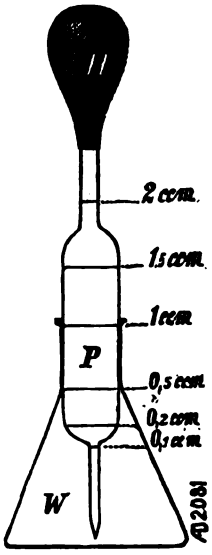
Cleansing of the Hands after the Use of Carbolic Acid or Corrosive Sublimate.—Carbolic acid is removed from the hands by bathing them for a sufficient time in alcohol and then anointing them with lanolin. After the use of corrosive sublimate solution the hands should be bathed in a solution of common salt 1 to 50, then washed with soap and water, and finally rubbed with lanolin.—*Pharmac. Central.*, No. 28, 1891.

CONTRIVANCE FOR WEIGHING OILS.

When small quantities of liquid fats, fixed or ethereal oils, or similar liquids are to be weighed for the purpose of analysis, the little apparatus shown in the illustration, suggested by Dr. R. Hefelmann, is very convenient. It consists of a small flask, W, into which is ground a drop tube, P, with rubber bulb, H. The tube is graduated, so that an approximate quantity of the liquid may be delivered. Of course the apparatus is weighed before and after withdrawal of the approximate quantity, so as to ascertain the exact weight taken out.—*Chem. Zeit.*

COPPER FLASKS.

Prof. W. Dittmar, of Glasgow, finds that copper flasks are much more serviceable and safe for many operations than those of glass. He has for years been using a kind of globular flask much sold in Glasgow as a sort of "Napier's Coffee-Pot," which is made of thin copper, tinned, and sold at about 10s. apiece. Of course these flasks are made in several sections, and the joints afterwards soldered. But, as they are so thin and the tinning is moreover often objectionable, he has had stouter ones made, also of larger size, soldered with *hard* solder (that is, brazed). He has found these copper flasks very convenient, particularly for the purification or rectification of alcohol and ether.—After *Chem. Zeit.*



Hefelmann's Apparatus for Weighing Oils.

Dittmar's Copper Flask.

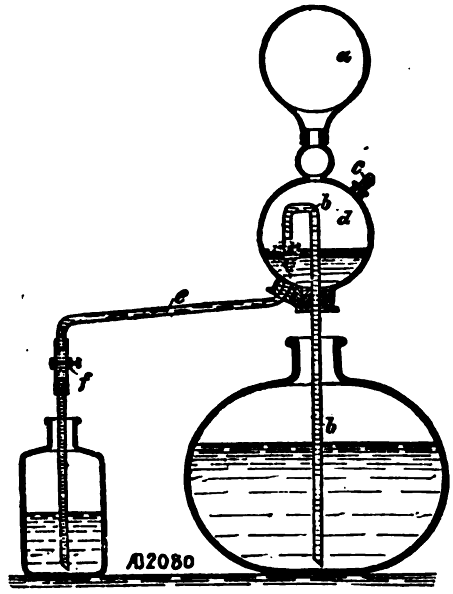
Methylene Blue in Malaria.

Not long ago the affinity shown by "methylene blue" for nerve tissue suggested its use as an anodyne (*Pharm. Journ.*, [3], xx., 1057). Similarly the observation that it is the best agent for staining the plasmodium of malaria has suggested that it might exercise a curative effect upon malarial disease (*Pharm. Post*, October 11th, p. 839). The results in two cases treated by Messrs. Guttman and Ehrlich appear to have confirmed the expectation, the fever disappearing in the first two or three days and the plasmodia from the blood within a week. The methylene blue was administered in capsules containing 0.1 Gm., repeated five times in the day, continued for eight days and after the disappearance of the fever. Whether the quantity of 0.5 Gm. daily can be exceeded without injury has not yet been ascertained. The treatment is followed by an increase in the secretion of urine, which is colored intensely blue; and some strangury has been observed, but no albuminuria. The strangury is considered of no importance, and it is stated that it can be treated by giving several times a day as much powdered nutmeg as will lie on the top of a knife—a remedy that is frequently used in South Germany to relieve the inconvenience following the drinking of new beer in excess. The fæces appear to contain the methylene blue in a reduced form, but become blue on exposure to light.—*Pharm. Journ.*

[It is not likely that the use of a remedy, producing such marked changes in the appearance of discharges, will be much in vogue in this country outside of hospitals. —Ed. Amer. Drugg.]

APPARATUS FOR SIPHONING LIQUIDS FROM CARBOYS, ETC.

This apparatus, which is patented (German patent 57,723, November 27th, 1890, Ferd. Stark, Ludwigshafen-on-the-Rhine), consists of a globular reservoir, *d*, to which is attached a rubber ball, *a*. The bottom of the reservoir contains two necks provided with stoppers, through one of which passes the siphon tube, *b*, while the other carries the exit tube, *e*. If the liquid for which they are to be used permits of it, the tubes, etc., may all be made of metal. At *f* a stopcock is attached, and a tube connected with the latter. When the rubber ball is compressed while the stopcock is closed, the liquid in the carboy will ascend into the reservoir through *b*. Next the stopcock *f* is opened, and also the stopper *c* in the reservoir, until the exit tube is filled with liquid. On now re-inserting the stopper *c* again, the flow of the liquid will continue, and may be arrested at any time by closing the stopcock.



Stark's Apparatus for Siphoning Liquids.

* * *

Chlorine Water and Quinine in Typhoid Fever.—Dr. Burney Yeo recommends as the best antiseptic in typhoid chlorine water with quinine. It is made by putting 30 grains of powdered chlorate of potash into a 12-ounce bottle with 40 minims of strong hydrochloric acid, the bottle is to be corked, the gas allowed to generate, then water is poured in little by little and well shaken with the gas, and finally 24 or 36 grains of quinine and an ounce of syrup of orange peel are to be added; of this mixture an ounce is to be given every two, three, or four hours. In the early stage—first week—one or two full doses of calomel—5 to 10 grains—are recommended, especially if there is constipation.

The Cost of Births, Marriages, and Deaths.—Some one estimates that getting born costs the people of the United States $250,000,000 annually; getting married, $300,000,000, and getting buried, $75,000,000. To the economical mind these figures will at once suggest the most advantageous course of conduct.

Notes on Essential Oils.*

Oil of Cassia.—A great change has taken place in the character of the oil as now furnished to the market. This is mainly due to the revelations of the methods of adulteration practised by the Chinese, which revelations were brought about by the investigations in the laboratories of Schimmel & Co. The importance of the subject has been so well recognized by the European houses in Hong Kong interested in oil of cassia, that three of them despatched employees to Leipzig to receive practical instruction in the method of testing the oil. The consequence has been the convincing of the Chinese that no more adulterated oil can be palmed off on exporters as pure. Nevertheless there are still two qualities of the oil quoted in Hong Kong, there being probably some persons who purchase the spurious oil, because cheaper, knowingly for certain markets where its quality will not be examined.

A large number of consignments of the pure oil were found by Schimmel & Co. to contain between 76 and 86 per cent of cinnamyl aldehyde, and to have the specific gravity 1.060 to 1.061. One lot yielded only 75 per cent, and its specific gravity was 1.058. The last-named percentage (75) is accepted by Schimmel & Co. as the lowest for pure oil.

On examining samples of the stock of oil of cassia existing in Hamburg and London, they found only one lot which contained only 68 per cent of aldehyde (being adulterated with petroleum) and having the specific gravity 1.047.

Regarding the estimation of the aldehyde, Schimmel & Co. give an improvement of their process, which we give under a separate heading (see page 367).

Oil of Bergamot.—The specific gravity of genuine oil of bergamot is never below 0.880, and that of the rectified or distilled oil not less than 0.870. Oil showing the specific gravity 0.860 is surely adulterated, either with oil of turpentine or oil of orange.

Oil of Geranium (Pelargonium).—The oil distilled on the island of Réunion is, in the judgment of Schimmel & Co., the finest, far superior even to the Algerian oil, which up to a few years ago stood at the head of the list.

Oil of Neroli.—Schimmel & Co. have themselves distilled oil of neroli from bitter-orange flowers directly imported from the Riviera, their object being to examine the constants of an assuredly genuine sample.

The yield of oil reported by the firm is astonishingly small. Five hundred and sixty kilos of the fresh flowers yielded only 0.46 Gm. of oil. This would be in the proportion of 1 *Gm.* of oil from 1,218 *kilos* of flowers. [We suspect that there is a misprint here, and that it was meant to say 0.46 kilos. This would about correspond to what other authorities report about the yield of orange flowers, viz., 1 part of oil from 1,000 parts of the flowers, though some give it as much higher—as, for instance, 0.6 to 0.7 per cent (see Flückiger and Hanbury, "Pharmacographia," 2d ed., p. 126).

The oil distilled by Schimmel & Co. turned out to differ in properties considerably from the best commercial French oil. It was found to have a specific gravity of 0.887 and to be optically inactive. When cooled to 10° C. (50° F.), a copious separation of a solid body in fine, shining lamellæ took place. Cooled to 0° C. (32° F.), the oil congealed to a firm mass of butter-like consistence. The stearopten of oil of neroli appears to be, like that of oil of rose, a paraffin-like body. It may be separated from the liquid portion by alcohol of 90 per cent, in which the stearopten is difficultly soluble.

The specific gravities of 11 samples of oil of neroli procured from different reputable sources varied between 0.875 and 0.889 at 15° C. Nine samples were optically inactive, while the remainder turned the plane of polarization to the right between +0°52′ and +9°40′. Only *one* of these oils congealed at 0° C. The others remained liquid, and separated no stearopten upon addition of alcohol of 90 per cent.

It remains to be ascertained to what cause these differences are to be ascribed.

Oil of Sassafras.—As is well known, the true odorous and active constituent of this oil is safrol, which is at present prepared, by careful fractional distillation, from the crude oil of Japanese camphor, in which it exists as such. Schimmel & Co. point out that there is now offered in this country a so-called "artificial oil of sassafras," which is not, as might be inferred, prepared by synthesis, but is likewise obtained from oil of camphor, though far from being pure safrol. It shows a specific gravity of 1.070. Pure safrol has the specific gravity 1.108.

Oil of Wintergreen.—Attention is called to the alleged test of distinction between natural and synthetic oil of wintergreen, recently announced, viz., that fuchsine is more soluble in the artificial oil, and this is supposed to be due to the presence of methylic alcohol. But Schimmel & Co. point out that the reason is a different one. It is simply this, that fuchsine is soluble in methyl salicylate, of which the artificial oil consists entirely, while the natural oil contains besides a small quantity of terpene, in which the fuchsine is insoluble, hence the natural oil has a weaker solvent power for fuchsine. Yet the difference is so small that the test cannot be relied on in practice. Moreover, certain adulterants (petroleum, turpentine, etc.) could be added to the pure synthetic oil which would diminish its solvent power for fuchsine and would thereby make it appear as a genuine oil.

Rose Pomade.—Schimmel & Co. appear for the first time as producers of rose pomade, in the preparation of which they use a method entirely different from that which is followed in the south of France.

The flowers, carefully selected and freed from the calices, are added to the fat, previously melted at a quite moderate temperature, and the mixture is kept in constant motion by means of suitable agitators. After a certain time the contents of the vessel are drawn off into a specially constructed centrifugal apparatus placed below, by means of which the fat is separated from the exhausted flowers in a very short time (a few minutes). This method does away with pressing between hot plates, and avoids contact with the hands of the operators.

The impregnated fat flows from the centrifugal apparatus into a reservoir, from which it is retransferred to the original vessel, in which it is then brought in contact with a fresh supply of roses. The process is repeated until it has acquired the desired strength.

The most important factor in this preparation is the quality of the fat. This must be absolutely odorless and of sweet and pure taste.

Citral.—This "concentrated or quintessential oil of lemon," as it might be called, is now prepared of superior quality. Seventy-five Gm. of citral are equivalent in aroma to 1 Kgm. of oil of lemon. The most advantageous method of using citral is to mix it with oil of lemon in the proportion of 14 parts of the latter to 1 part of citral. This mixture is soluble to a clear liquid even in dilute alcohol, down to 30 per cent.

Heliotropin.—This substance [properly piperonal] has become an important article for perfumers. It is necessary to remember that it must be guarded against heat and sunlight with the greatest care. It can be sent to hot countries only during winter, and must be kept in a cool cellar or other cool place. Direct sunlight destroys it completely.

Some Things Ordered at the Druggist's.—A well-known Philadelphia pharmacist has recently received the following written orders for medicine: A dose of castor oil for a child aged fifteen. Be sure and send enough to work her good. One dozen 2 ounce quinine pills; one bottle honeatta water; a boo gee; one box of Brandteth's pills, sugar quoted. Please send enough appecac to throw up a four months old baby; two 5-grain blue mask pills; ten cents worth partisapated chalk.

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* From the October "Bericht" of Schimmel & Co., Leipzig.

Selected Formulas from the German Unofficial Formulary.*

Ferrum Peptonatum.

Peptonate of Iron.

Albumen, dry	20 parts.
Hydrochloric Acid (sp. gr. 1.124)	33 "
Pepsin (Germ. Ph. 1:100)	1 part.
Solution of Oxychloride of Iron (German Ph. "Dialyzed Iron")	240 parts.
Water	a sufficient quantity.

Dissolve the albumen in 2,000 parts of water, add 30 parts of the hydrochloric acid, and the pepsin, and macerate the mixture during twelve hours at 40° C. Then neutralize it exactly with solution of soda, separate any precipitate which may have formed, and add the solution of oxychloride of iron previously mixed with 2,000 parts of water. Now neutralize exactly with a dilute solution of soda, so as to precipitate the peptonate of iron formed, and wash the latter with water by decantation until the washings are no longer rendered opalescent by silver nitrate. Then collect the precipitate upon a moistened straining cloth, allow it to drain, transfer it to a porcelain capsule, add 3 parts of hydrochloric acid, and warm gently until solution has taken place. Evaporate the liquid, on a water or steam bath, to a syrupy consistence, spread it on plates of glass, and dry it at a temperature of 50° C. (122° F.).

The product appears in form of shining, brown, transparent laminæ or scales containing 24 to 25 per cent of metallic iron. It is slowly soluble in cold, more rapidly in warm water to a clear, faintly acid liquid, which is not rendered turbid either by boiling or by alcohol. On slowly heating 10 Cc. of a solution (1 in 20) of peptonate of iron with 2 Cc. of hydrochloric acid to boiling, the liquid at first becomes turbid, then separates flakes, which finally dissolve.

Estimation of Iron.—Dissolve 0.5 Gm. of peptonate of iron in 20 Cc. of hot water, heat with 10 Cc. of diluted sulphuric acid until the matter first separated is redissolved, dilute with 200 Cc. of hot water, add an excess of ammonia, and heat on a water bath until the precipitate has entirely separated and the liquid portion appears colorless. Collect the precipitate upon a filter, wash it with hot water until the filtrate is no longer rendered turbid by barium nitrate, and dissolve it off the filter by dropping upon the latter hot, diluted sulphuric acid. Dilute the solution with water to 100 Cc. [in a measuring cylinder], add 3 Gm. of potassium iodide, and allow the cylinder to stand, well stoppered, for half an hour at a temperature not exceeding 40° C. Then cool, and titrate the liberated iodine by sodium hyposulphite volumetric solution, of which 21.4 to 22.3 Cc. should be required.

Hydrargyrum Oleinicum.

[*Oleatum Hydrargyri.*]

(Oleate of Mercury.)

Yellow Oxide of Mercury	25 parts.
Alcohol	25 "
Oleic Acid	75 "

Triturate the yellow oxide of mercury, in a porcelain capsule, with the alcohol, add the oleic acid, and continue triturating until the mixture has become so thick that it remains nearly homogeneous. Allow it to stand twenty-four hours, then warm the capsule and contents at a temperature not exceeding 60° C., and stir until the product weighs 100 parts.

A faintly yellowish-white, somewhat translucent mass of the consistence of a stiff ointment, having a distinct odor of oleic acid, slightly soluble in alcohol or ether, more readily in benzin, and completely in fixed oils.

Addition of hydrogen sulphide solution renders it deep black.

Gelatina Lichenis Islandici Saccharata Sicca.

Saccharated, Dry, Iceland Moss Jelly.

Iceland Moss, coarsely comminuted	15 parts.
Potassium Carbonate	1 part.
Sugar	a sufficient quantity.
Water	a sufficient quantity.

Mix the Iceland moss with enough water to cover it, add the potassium carbonate, and let stand twenty-four hours, occasionally stirring. Separate the liquid, and wash the moss well with water until it no longer has a bitter taste. Now add to it 200 parts of water, digest the whole on a steam bath during four hours, occasionally stirring, and then strain. Repeat this digestion with water, and unite the strained liquids. Then add 5 parts of sugar, evaporate until the mass is no longer sticky, cut it in pieces and dry them. Then reduce them to a moderately fine powder, and mix this with enough sugar to obtain altogether 10 parts of product.

Gossypium Carbolisatum.

Carbolized Cotton.

Carbolic Acid	15 parts.
Resin	60 "
Alcohol	520 "
Castor Oil	6 "
Purified Cotton	200 "

Dissolve the resin in the alcohol, filter the solution, and add to it the carbolic acid and castor oil. Saturate the cotton with the mixture, press the damp mass until it weighs 600 parts, and dry it without heat.

One hundred parts of the product contain about 5 parts of carbolic acid.

Gossypium Hæmostaticum.

Styptic Cotton.

[*Gossypium Stypticum.*]

Solution of Chloride of Iron (Ph. Germ., sp. gr. 1.280)	150 parts.
Glycerin	15 "
Water	250 "
Alcohol	200 "
Purified Cotton	200 "

Mix the liquids, immerse the cotton therein, then press it until the product weighs 600 parts, and dry it at a gentle heat, with exclusion of light.

One hundred parts contain about 25 parts of anhydrous ferric chloride.

Keep the product protected against light.

Gossypium Hydrargyri Bichlorati.

Sublimate Cotton.

[*Gossypium Hydrargyri Chloridi Corrosivi.*]

Mercuric Chloride (Corrosive Sublimate)	9 parts.
Lithium Chloride	9 "
Alcohol	7,500 "
Purified Cotton	2,500 "

Dissolve the salts in the alcohol, which is then preferably tinted with a little fuchsine, and saturate the cotton with the liquid. Then press the cotton until it weighs 7,500 parts, and dry it in an airy place, protected against the light.

One hundred parts contain about 0.25 part of corrosive sublimate. Keep protected against light.

[*Note of Ed. Am. Drugg.*—Prepared with alcohol this dressing would become too expensive, unless most of the alcohol could be recovered. Wood alcohol may be used in place of ethylic alcohol.]

Kefir.

Cow's milk caused to undergo alcoholic fermentation by means of the so-called kefir grains, a peculiar ferment prepared in the Caucasus.

Preparation.—Cover the air-dry kefir grains with water at 30° C. (86 F.), and macerate from four to five hours.

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* Continued from page 298.

Pour off the water, wash the kefir grains several times with fresh water, then pour upon them ten times their weight of milk and shake the mixture every hour.

Pour off the milk twice each day, wash the swelled kefir grains several times with water, cover them again with 10 parts of new milk, and continue to do this until the milk has acquired—after about five to seven days—a purely acidulous odor and the completely swelled kefir grains float on the surface of the liquid.

After the kefir grains have thus been prepared, they are again added to 10 times their original weight of fresh milk. The mixture is allowed to stand between six and twelve hours, being occasionally shaken, and then strained.

Seventy-five cubic centimetres of the strained liquid are poured into a well-cleaned, strong bottle holding about ⅝ litre (21 fluidounces), which is then nearly filled with fresh milk and securely stoppered.

The bottles are kept at a temperature of about 15° C. (59° F.), and are occasionally shaken. In from one to three days the contents will be ready for use.

All cow's milk employed in this process must have been previously boiled [and skimmed], and then cooled again to 20° C.

Prepared kefir is a strongly effervescing, creamy liquid, of an agreeable, acidulous taste, and an odor like buttermilk.

The casein which has been precipitated by the above process must be in a condition of extremely fine division.

Latin in Prescriptions.

THERE occur periodically attempts to induce medical men to write prescriptions in the vernacular. Several legislatures have even been appealed to, and laws have been framed for the abolition of Latin. The arguments for this are generally that the latinity of modern prescriptions is very bad, that the practice is simply the survival of an ancient and useless custom, and that it is pedantic and useless, and conceals from the patient things that he ought to know. We regard it as fortunate that the good sense of the profession has not been imposed upon by these specious arguments. The reasons for using Latin in prescriptions are sound and practical. The chief one is, that it is of the greatest importance to have drugs given names which will not be changed with fashion or locality, and which will be understood all over the world. In a recent article upon this subject, Prof. Joseph P. Remington (*Journal of the American Medical Association*, October 21st, 1891) has given a long list of plants whose English names indicate three or four different substances. Thus, to illustrate:

Lungwort may be either *Pulmonaria officinalis* or *Variolaria faginica.*

Masterwort may be either *Angelica atropurpurea* or *Imperatoria ostruthium.*

Matico may be either *Piper angustifolium* or *Artanthe elongata.*

Milkweed may be either *Asclepias tuberosa*, *Apocynum androsæmifolium*, or *Euphorbia corollata.*

Monkshood may be either *Aconitum napellus* or *Leontodon Taraxacum.*

Partridge berry may be either *Gaultheria procumbens* or *Momordica balsamina.*

Pellitory may be either *Anacyclus Pyrethrum* or *Xanthoxylum fraxineum.*

Prickly ash may be either *Xanthoxylum Fraxineum* or *Aralia spinosa.*

Rattle root may be either *Macrotys racemosa*, or *Cimicifuga racemosa*, or *Cicuta virosa.*

Rattlesnake root may be either *Goodyera pubescens*, *Nabulus albus*, *Cimicifuga racemosa*, or *Polygala Senega.*

Snake root may be either *Cimicifuga racemosa*, *Aristolochia serpentaria*, *Eryngium aquaticum*, *Liatris spicuta*, *Asarum Canadense*, *Polygala Senega*, or *Eupatorium aromaticum.*

Spice berry may be either *Gaultheria procumbens* or *Laurus benzoin.*

But besides this, it would add immensely to the difficulties of practical therapeutics, if in the literature of foreign languages the vernacular was used to designate the drugs employed. Such difficulty is indeed experienced to some extent already with the French, whose prescriptions are often unintelligible to any but Frenchmen.

There is no doubt a need of reform in the latinity of modern prescription writing, but the abolition of the use of this language would be a misfortune.—Editorial in *Medical Record.*

Salicylamide.

THE pharmacology of salicylamide is the subject of a preliminary communication from Dr. W. R. Nesbitt, of Toronto. As the result of a number of experiments, the author expresses the opinion that for therapeutic purposes salicylamide presents advantages over salicylic acid and its salts in being free from taste, more soluble than salicylic acid, acting more promptly and in smaller doses, having greater analgesic properties, and being pharmacologically safer. Salicylamide $C_6H_4\left\langle\begin{matrix}OH\\CO.NH_2\end{matrix}\right.$ was first prepared by Limpricht, by treating gaultheria oil with concentrated solution of ammonia—a method preferred by the author, as avoiding the possibility of introducing foreign toxic compounds, as might be the case when an artificially produced methyl salicylate is used.

When ammonia and gaultheria oil have stood together in the cold for some days, the liquid assumes a deep reddish-brown color, and separation takes place in brown crystals that can be easily purified by recrystallization. From a saturated solution rapidly cooled it separates in an acicular form, otherwise it occurs in thin, long plates or bunches of plates. By treatment with charcoal Dr. Nesbitt found it easy to obtain perfectly colorless, thin transparent plates, melting at 142° C., soluble in alcohol, ether, chloroform, and about 250 parts of water. Salicylamide is quite tasteless, but produces a gritty sensation between the teeth. It is excreted in the urine partly unaltered, but chiefly as salicyluric acid. It possesses decided germicidal properties, and it was found that both diastatic and peptic changes are retarded by it, but not to the same extent as by salicylic acid.—*Therap. Gazette*, October 15th, and *Pharm. Journ.*

A New Laboratory Process for Preparing Hydrobromic Acid.

THIS method is a synthetical one, and consists in passing a stream of hydrogen and bromine vapor over a spiral of platinum wire heated to bright redness by means of an electric current. A glass tube, about 7 inches long and ⅝ inch bore, is fitted at each end with a cork carrying a short, straight piece of small tube; through each cork is also fixed a stout wire, and these two wires are joined by means of a short spiral of platinum wire, the spiral being about 1 inch long. One end of this apparatus is connected to a small wash bottle containing bromine, through which a stream of hydrogen can be bubbled. The other end is attached to a tube dipping into a vessel of water for the absorption of the gas, or, if a large quantity of the solution is required, to a series of Woulff's bottles containing water. Hydrogen is first slowly passed through the tube until the air is displaced, when the platinum spiral is heated to bright redness by the passage of a suitable electric current.

Complete combination takes place in contact with the hot wire, and the color imparted to the ingoing gases by the bromine vapor is entirely removed, and the contents of the tube beyond the platinum are perfectly colorless. The vessel containing the bromine may be heated to a temperature of about 60° C. in a water bath, at which temperature the hydrogen will be mixed with nearly the requisite amount of bromine to combine with the whole of it. So long as even a slight excess of hydrogen is passing, which is readily seen by the escape of bubbles through the water in the absorbing vessels, the issuing hydrobromic acid will remain perfectly colorless and therefore free from bromine; so that it is not necessary to adopt any of the usual methods for scrubbing the gas through vessels containing phosphorus. When the operation is proceeding very rapidly a lambent flame occasionally appears in the tube just before the platinum wire, but this flame is never propagated back through the narrow tube into the bromine bottle. The precaution may be taken, however, of plugging this narrow tube with a little glass wool, which renders any inconvenience from this cause quite impossible. By this method a large quantity of bromine may be rapidly converted into hydrobromic acid without any loss of bromine, and the operation when once started can be allowed to proceed without any further attention.—After *Chem. News*, Oct. 30th.

[*Note by Ed. Amer. Drugg.*—In 1881 August Harding, of San Francisco, published a similar method in the *Berichte d. Deutsch. Chem. Ges.* (p. 2085). He used a platinum tube, 4 inches long and $\frac{1}{3}$ inch wide, containing some spirally twisted platinum foil, which was heated by a Bunsen burner. The whole apparatus is described and illustrated in this journal (NEW REMEDIES), 1882, p. 43.]

Preparation of Pure Tuberculin.

DR. KOCH has recently given precise information as to the method adopted in preparing tuberculin.

It is generally understood that tuberculin is a product of the cultivation of tubercle bacilli obtained in the form of a glycerin extract.

As may be supposed, a principal difficulty has been the cultivation of the bacilli free from admixture with other organisms. Originally the tubercle bacilli were sown upon "glycerin-peptone-agar," and when the culture had attained its full development it was washed off, collected on a fine wire gauze, extracted with a 4-per-cent glycerin solution, the solution evaporated to one-tenth, filtered, and the filtrate used. When a large demand arose for tuberculin the agar cultivation was found unsuitable, as it gave relatively small results. A previously abandoned attempt to cultivate the bacilli in a liquid medium was therefore resumed, but at first without success, until some small, flat pieces of cultivation which had been left dry and unmoistened in the upper part of the flask were observed swimming on the top of the liquid, where they developed most luxuriantly. In the course of a few weeks they formed over the entire surface a tolerably thick, whitish skin, dry on the upper side, which eventually became moistened, broke up, and sank to the bottom. The product from such a culture proved considerably greater than that developed on solid media. The cultivation liquid used is an infusion of veal made faintly alkaline and with 1 per cent of peptone and 4 or 5 per cent of glycerin added. The bacilli sown give practically the same results, whether taken from fresh or old cultivations, from a tuberculous patient or after passing through a series of animals.

When the culture is quite mature, which occurs at the end of six or eight weeks, and has been ascertained to be absolutely pure, it is extracted by means of the cultivation liquid itself, and the extract is evaporated on a water bath to one-tenth of its original volume and filtered through porcelain. It then contains from 40 to 50 per cent of glycerin, and is tested as to its activity by experiments upon guinea-pigs.—After *Deutsch. Med. Wochenschr.* and *Pharm. Journ.*

Testing Oil of Cassia.

THE best criterion of the purity or genuineness of oil of cassia is the amount of cinnamyl aldehyde it contains. It is the merit of Schimmel & Co., of Leipzig, to have first pointed out the nature of the adulteration so long practised by the Chinese, and also to have communicated a method of testing by which the adulteration can be detected without difficulty. We published this method last year (AMER. DRUGG., 1890, 135), but Schimmel & Co. have recently improved the process so that it takes a much shorter time. We therefore republish it here, incorporating therein the new features, after their October report.

Requisites.—A solution of sodium bisulphite containing about 30 per cent, such as is usually sold in the market, but it must be perfectly clear; a pipette marked at 10 Cc.; a water bath; and a special small glass flask of the capacity of about 100 Cc., having a neck about 13 Cm. ($5\frac{1}{4}$ inches) long and 8 Mm. ($\frac{11}{16}$ inch) in diameter, upon which is a graduated scale beginning with 0 below, extending to 6 Cc., and divided into $\frac{1}{10}$ Cc.

Method of Testing.—Transfer 10 Cc. of the oil to be tested, by means of the pipette, into the flask, allow the pipette to drain, and empty it as completely as possible by blowing through it. Now warm the flask on the water bath, and then add to it the solution of sodium bisulphite, in small portions at a time, waiting after each addition until the solid mass produced by it has become completely liquid again. When the further addition of the solution no longer produces a solidification, the whole of the aldehyde has entered into a liquid combination with the bisulphite. About ten or fifteen minutes will be required for this reaction, provided the percentage of aldehyde was high. If only a small quantity of aldehyde was present, a longer time is required to complete the reaction. The completion of the latter is recognized by the contents forming two distinct and sharply defined layers—one, a lower aqueous one, containing in solution the bisulphite compound of the cinnamyl aldehyde; and an upper, oily layer, consisting of the other constituents of the oil. Now take the flask from the water bath and cool it to the ordinary temperature [at which the original oil was measured]. Next add more bisulphite solution until the oily layer has been driven up into the narrow neck of the flask, and its lower margin corresponds with the mark 0. Read off the number of cubic centimetres of this layer, and deduct it from 10. Supposing the oily layer measured 2.7 Cc., then the original oil contained 7.3 Cc. of cinnamyl aldehyde and 2.7 Cc. of non-aldehydes, or 73 per cent of the former and 27 per cent of the latter. Of course these are percentages by *volume*. Yet, since the specific gravity of the non-aldehydes of oil of cassia (1.060 at 20° C.) is almost identical with that of cassia oil itself, the difference between percentage by volume or by weight is insignificant.

In making the test it is necessary to assure one's self that the *whole* of the cinnamyl aldehyde has been acted upon. No sign of any coagulum must be remaining either in the oily layer or adhering to the flask.

If the oil is adulterated with much resin, the coagulum produced by the bisulphite will dissolve only with difficulty. If protracted heating does not cause solution, the above test is inapplicable.

Instead of using an additional quantity of solution of sodium bisulphite to cause the oily layer to ascend into the neck of the flask, a filtered solution of chloride of sodium may be used.

◆

An Attempt to Render Tobacco Harmless.—Smokers may be pleased to learn that Dr. Gautrelet, of Vinchy, claims to have discovered a method of rendering tobacco harmless to mouth, heart, and nerves, without detriment to its aroma. According to him, a piece of cotton wool steeped in a solution (5 to 10 per cent) of pyrogallic acid, inserted in the pipe or cigarholder, will neutralize any possible effects of the nicotine. In this way not only may the generally admitted evils of smoking be prevented, but cirrhosis of the liver, which in Dr. Gautrelet's experience is sometimes caused by tobacco, and such lighter penalties of overindulgence as headache and furring of the tongue, may be avoided. Citric acid, which was recommended by Vigier for the same purpose, has the serious disadvantage of spoiling the taste of the tobacco. —*Science.*

Consumption of Tobacco in France.—Last year French smokers consumed 4,600,000 francs' worth of cigars, 10,000,000 of cigarettes, 29,000,000 of snuff, and 91,000,000 worth of pipe tobacco. The greatest snufftakers are old peasant women and priests. Snuff is often allowed to Sisters of Charity, as it renders the nose insensible to the bad smells of slums and hospitals, and acts as a disinfectant of the air taken in by the nostrils. The greatest number of pipe smokers are along the coast from Nantes to Calais. Fisherwomen as well as sailors use the pipe. The consumption of ladies' cigarettes rose from 101,900 francs to 800,000 francs last year, and the orders received at the tobacco manufactory promise a still further increase under this head. There is one anti-tobacco society in France.—*The Sun.*

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EDITORIAL.

TAX-FREE ALCOHOL.

NOW comes a wail from Germany regarding the hardship which manufacturers of fluid extracts have to suffer if they want to use tax-free alcohol. It appears that the regulations regarding the use of alcohol free from internal revenue tax have been recently modified and made much more stringent, no doubt owing to some leaks. When alcohol is wanted for use in the arts or manufactures, free from tax, the law requires that it must be "denaturalized" immediately after having been mixed with water, so that it cannot be fraudulently withdrawn or used for other purposes not comprised within the Government permission. As it would be impossible to use "denaturalized" alcohol for medicinal fluid extracts, for the denaturalization is accomplished by the addition of various nasty-tasting or badly-smelling substances, the problem to be solved was how diluted alcohol, intended for percolation, could be so guarded by Government that it could not be used for other purposes without compelling the constant supervision of a Government official. This problem has been solved in this way. The firm of M. Hellwig, manufacturer of chemical and pharmaceutical preparations, has set up a large number of small percolators of 10 litres (5 quarts) capacity, over each of which is placed a bottle or reservoir containing enough of the menstruum to exhaust the drug packed in the percolator. These reservoirs are connected with the percolator by means of a *seal* applied by the internal revenue officer. This seems to be a queer and useless proceeding. For there are many fluid extracts from which the alcohol can easily be distilled off again without imparting to it such a flavor that it becomes unfit for use as an ingredient in artificial beverages or liqueurs. It seems strange to us on this side of the ocean, who are compelled to use tax-paid alcohol for all such purposes, that the German wholesaler or manufacturer can enjoy such a privilege, while any dispensing pharmacist would be compelled to use tax-paid alcohol. We do not wish to be misunderstood, however. For many years efforts have been made in this country to release alcohol, to be used in the arts or for medical purposes, from internal revenue tax. But these efforts have been so far unsuccessful, no doubt because the Government advisers of the respective committees of the two houses of Congress argued that this would open the doors to extensive frauds and that tax-free alcohol would surely find its way into the hands of the makers of artificial liquors, who were the very persons not intended to be benefited by the proposed act.

REGARDING the desirability of tax-free alcohol in the pharmaceutical arts of this country, it is apropos to this subject to inquire who would derive benefit from this change in our revenue laws, and the answer which seems most reasonable is—the manufacturer of nostrums. For if a tax be still imposed upon alcohol used as a beverage, it will be essential that its use in the arts must be carried on with restrictions and conditions which would not be practicable outside of the limited number of establishments capable of direct governmental supervision. This would rule out all but the larger manufacturing laboratories, and thus tend to place the retail pharmacist at a still greater disadvantage than he experiences at present in the manufacture of tinctures and fluid extracts, as compared with manufacturers on the large scale. The difference in cost of materials would at once preclude any effort by retailers to make such preparations, excepting in emergencies.

The retailer would be, still more than now, dependent upon manufacturing laboratories for his supplies, and the need for individual skill as a pharmaceutical chemist be correspondingly removed, so that the tendency would be to lessen the general need for higher professional qualification among pharmacists.

The next result would naturally be an increase in the number of manufacturing laboratories, with corresponding competition in this branch of the business, not at all likely to be confined to alcoholic preparations. For, when laboratories are once established, other things than tinctures and fluid extracts, which may or may not involve the employment of alcohol, will be made and sold. Those who are at present engaged in a wholesale and manufacturing business have thus little to gain from free alcohol with restrictions which limit its use in the arts to establishments maintaining a Government inspector.

How largely will the public be served by the removal of the alcohol tax? They could buy their "patent" medicines, galenicals, and prescriptions for less money at the notion stores and the "cutting" druggists'; and the other retailing druggists would ultimately be obliged to lower prices to correspond to the diminished price of the materials used. Indeed, it is not unlikely that the public might consider itself entitled to a reduction in prices out of proportion to the difference in actual cost of materials, and thus add to the present embarrassments of the trade.

Altogether, it appears to us that the interests of the drug trade are better promoted by the present conditions than they would be by a removal of the tax on alcohol employed in the arts under the restrictions which would become necessary; and that, until *all* taxation of alcohol is abandoned, pharmacists will do better to oppose such partial reduction than promote legislation to that end. It is sometimes wiser in such matters

"To bear the ills we have
Than rush to others that we know not of."

ORTHOGRAPHY OF METRIC TERMS.

Authorities on orthography are at variance regarding the proper English spelling of the words *litre* (*liter*), *metre* (*meter*), and kindred terms and their compounds or derivatives. Since the next Pharmacopœia will, no doubt, have much occasion to mention such terms, and pharmaceutical literature in general will hereafter more frequently make use of them, it will be of advantage to examine the claims made for both spellings, and to try to reach a decision.

The words involved in this inquiry are mainly the following: *metre* (*meter*), *litre* (*liter*), and *titre* (*titer*).

As to "metre," it must be acknowledged that the spelling *meter*, *centimeter*, etc., has become very customary in this country, no doubt through the analogy of other words ending in "meter" which have long been spelled thus exclusively, viz.: barometer, thermometer, hydrometer, diameter, hexameter, etc. We ourselves have up to the present time always written "meter" "centimeter," "liter," etc. On examining those analogous words, however, it will be seen that they all have the accent on the third last syllable—that is, the word *meter* in them is distinctly dissyllabic and the *e* short. On the other hand, the words "centimetre," "millimetre" (or "centimeter," "millimeter") are commonly pronounced with the accent upon the *me*, no matter which way they are spelled. This is due to the fact that these terms were transplanted into English, not directly from the classic languages, but from the French, in which the term *mètre* was chosen to denote a specific kind of measure. Both accent and origin of the terms, therefore, justify the retention of the French spelling *metre*. This tendency to preserve the spelling of words which have passed from classic languages into English through the intermediary channel of French, is also evidenced by such forms as colour, odour, which forms are supported by British orthoëpists and authorities, though they are less favored by American writers.

The best modern authorities nearly all admit both spellings, *meter* and *metre*. The Century Dictionary evidently prefers *meter* (and *liter*), as it places them first, though it does not say so expressly. On the other hand, Murray's great Dictionary (Oxford) only recognizes the spelling *centilitre*, *centimetre*, rejecting the other. An interesting note regarding the spelling which certain words in *-tre* (or *-ter*) have undergone will be found in Murray's Dictionary under the word *centre*.

As to the words *litre* (*liter*) and *titre* (*titer*), we will be justified in deciding beforehand that they ought to be spelled in analogy to *metre* or *meter*, whichever of these two forms may be finally preferred.

Before drawing a conclusion from the facts so far stated, let us also consider the prevailing modes of writing the term *gramme* (*gram*). It is to be regretted that the Century Dictionary has given the preference to the abbreviated form *gram* (though the form *gramme* is also quoted), no doubt led by the principle (confessedly governing its responsible authors) of eventually reforming English spelling in accordance with modern "fonetics." We are ourselves in full sympathy with the new movement, but object to its application in cases where it might cause awkward or dangerous misunderstanding. The *danger* of the abbreviated form *gram* probably never occurred to the authorities connected with the editorial staff of the Dictionary, and, in fact, it is not likely to occur to one who has not had much to do with prescriptions or technical recipes, or who is not aware that the words *gram* and *grain* have very often been confounded, either by mere inadvertence or by the breaking off of the dot upon the *i* in grain: *gram—grain*, a confusion which has been *the cause of a number of deaths*. It is true that the form *gram* was adopted a number of years ago, by an International Commission held on the Continent of Europe, as the standard spelling, but neither pharmacists nor physicians had any voice in this convention. The latter would certainly have pointed out the dangerous consequences, though they might not have prevailed against the arguments of the mathematicians and other pure-scientists assembled there.

The last U. S. Pharmacopœia, fully recognizing the importance of avoiding confusion between *gram* and *grain*, adopted the spelling *gramme*, and it is not likely that this will be altered in the next revision of this work.

Assuming, then, that the original French spelling of this word will be preserved, we have here an additional reason for preserving the French forms of the allied terms *metre*, *litre*, *titre*, and of compound words containing these. Accordingly, we advocate a general adoption of this mode of spelling, and shall hereafter adhere to it ourselves. We know that a committee of the American Association for the Advancement of Science has had the spelling and pronunciation of these, and of chemical terms generally, under consideration for several years. From a recent report published by this committee, it appears that a majority lean toward the spelling *meter*, *liter*, *titer*. We have no other objection against this way of spelling, except that it is not in harmony with the spelling of the term *gramme*, and we earnestly and seriously protest against the introduction of the abbreviated word *gram* into medicine or pharmacy.

Incidentally we desire to say a few words regarding the abbreviations or symbols used for the terms above mentioned. The International Convention mentioned above adopted the abbreviation *gr.* for the word "gram." Manifestly this is a dangerous abbreviation in all countries where the *grain* is still in common use. In France, Germany, and most other European countries the grain has either never existed or has become obsolete, so that there is no chance of any confusion there. The last U. S. Pharmacopœia placed its seal of approval upon the abbreviation or symbol *Gm.*, it being intended that all abbreviations of terms of the *metric* system should begin with a *capital* letter, and accompanying numbers to be written with *Arabic* figures; while abbreviations of terms of the *common* system should begin with a *small* initial, and accompanying numbers to be written with *Roman* figures.

Accordingly, the following abbreviations or symbols ought to be used:

M = metre.
Gm. = gramme.
L = litre.
gr. = grain.
Mm. = millimetre.
Cm. = centimetre.

The term "cubic centimetre" is, by long custom, abbreviated by using two c's: cc., or c.c., or C.c., or Cc.; also sometimes thus, cm^3, Cm^3. In accordance with the rule that metric terms should be written with capital initials, the last (present) U. S. P. chose "C.c.," but there is no need of the period after the C, as this stands for the adjective "cubic," hence the preferable symbol is:

Cc. = cubic centimetre.

CORRESPONDENCE.

VOLUMETRIC ESTIMATION OF ACETATES.

Editors of American Druggist.

In reply to Dr. C. C. Hamilton's letter of October 30th, published on page 356 of your journal, I should like to ask him how he can reconcile his use of the expression $\frac{N}{2}$ sulphuric acid with the statement made on pages 107, 114, 130 of Muter's "Analytical Chemistry," of which he is the American editor. Dr. Hamilton evidently feels justified in using the terms normal and seminormal indiscriminately for the same acid, for in his book he states that *normal* sulphuric acid contains 49 Gm. of H_2SO_4 in every litre, and in his method for the volumetric determination of acetates he claims that $\frac{N}{2}$ sulphuric acid likewise contains 49 Gm. H_2SO_4 in each litre. It was on this point that I criticised Dr. Hamilton's paper, the wrong use of the expression $\frac{N}{2}$ acid, and I say again that $\frac{N}{2}$ H_2SO_4 will be understood by all analysts to mean an acid containing 0.020 SO_3 in each cubic centimetre, Dr. Hamilton's statement to the contrary notwithstanding. If Dr. Hamilton's method requires a stronger acid to show the change of color promptly, all well and good; but do not call this acid seminormal ($\frac{N}{2}$) and say that it should neutralize an equal volume of volumetric solution of soda U. S. Pharm. Let Dr. Hamilton promptly acknowledge his error and say that his table refers to the use of *normal* H_2SO_4 of such strength as stated on page 114 of his own book; otherwise the method may never receive the support of analysts and pharmacists.

Respectfully,
CHAS. CASPARI, JR.

MARYLAND COLLEGE OF PHARMACY,
BALTIMORE, November 23d, 1891.

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BIBLIOGRAPHY.

DOMESTIC ALMANAC: 1892. A Medical and Hygienic Reference Book.

Recognizing the occasion for an almanac for distribution by pharmacists as a medium for advertisement, Mr. Hallberg, of Chicago, with the aid of cuts derived from Peter's work on ancient pharmacy, has prepared an attractive book which contains matter calculated to disseminate information which will benefit both the pharmacist and the public. An investment in this mode of advertising ought to give profitable returns.

AN ABSTRACT OF THE SYMPTOMS, with the Latest Dietetic and Medicinal Treatment, of Various Diseased Conditions. The Food Products, Digestion, and Assimilation. The New and Valuable Preparations Manufactured by Reed & Carnrick. New York: Reed & Carnrick, 447–449 Greenwich street. New York, 1891. Pp. 79; small 8vo, muslin.

The foregoing title indicates clearly the character of the volume. The various conditions referred to embrace those in which nutritive changes are leading factors, and present opportunities for the employment of the dietetic preparations for which these manufacturers are deservedly noted. As might be anticipated, the importance of dietetic regimen has received a large share of attention, but by no means excludes the essential factors of etiology and pathology or some reference to medicinal treatment. While the compilation is anonymous, the references include recent literature by acknowledged authorities.

ALL AROUND THE YEAR is a new calendar for 1892 issued by Lee & Shepard, Publishers, of 10 Milk street, Boston. It is in the form of cardboards, 4¼x5¼ inches, with gilded edges, tassels, rings, and suspending chain, and has upon each card a calendar for the month with most charming designs in pale tints of children who typify the different months in their costumes and pastimes. The calendar is most attractive, and sells for 50 cents, boxed, and postage paid.

INFORMATION WANTED.

No. 2,550.—**Breaking of Shelf Bottles.** During the past year several inquiries have been received for the reason why many shelf bottles containing waters crack about the neck. The frequency with which these inquiries are accompanied by the statement that *all* bottles of this character are thus damaged warrants some study of the conditions involved. We hope to hear from some one who has given the subject practical consideration.

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NEWS AND NOTES.

MISSOURI.

THE retail druggists of the State of Missouri are always busy at this time of year unpacking holiday goods and arranging them in as attractive a manner as possible. Those of the large cities, like St. Louis and Kansas City, do not carry as immense stocks of toys as their country cousins, but they make up for it by handling more expensive goods in the line of toilet sets, cut-glass bottles, and similar articles suitable for presents. In the smaller towns throughout the State the retail druggists feel as if the holiday trade in toys, picture books, and such things belonged exclusively to them. They look upon the general dealer who handles holiday goods as infringing upon their rights.

The druggists of St. Louis seem to be tiring of the holiday trade, and this year there is a marked decrease in the amount of goods which they are handling. This change has been gradually brought about by the inroads made in holiday goods by the general dry-goods stores. Each year, for some time past, the dry-goods dealers have been giving special attention to almost everything in the way of holiday presents. They have cut the profits down to such an extent that a druggist becomes dissatisfied with the difference between the buying and selling prices. It is probable that a few more years will see a complete revolution in this trade, and the druggists will no longer attempt to handle goods that are only in season during the holidays.

Those who have been familiar with the wholesale drug houses of St. Louis for the past dozen years cannot help but be impressed by the different appearance presented by them during the present holiday season and that of a few years ago. The stores are no longer stocked with toys and other holiday goods, but business progresses in the even tenor of its way as if Christmas was not approaching. An interview with leading wholesale dealers reveals the explanation; it is claimed that competition with notion houses and stationery dealers has cut the profit down to such an extent that it does not pay them to make special arrangements for holiday trade. The handling of holiday goods by wholesale druggists has always interfered with their regular trade, and they now feel as if the loss on that kind would equal the increase from special holiday sales.

There is a possibility that the druggists in the smaller towns will gradually give up the holiday trade and turn it over to dealers in notions, stationery, etc. It seems to be in keeping with the tendency of the times, and may be brought about gradually, so in the course of a few years the entire holiday trade will have slipped away from both wholesale and retail dealers in drugs.

With present competition and low prices in holiday goods, it requires great judgment in buying and special care in selling in order to realize a profit. Holiday goods must be very carefully selected, judiciously priced, and attractively displayed in order to render a profit. Even with all these pains it often happens that a large quantity of holiday goods are left over after the holiday season. There are two methods of disposing of them: one is to sell them at extremely low rates and the other to carefully pack them away for reappearance next year as "new goods." It is difficult to say which one of the two plans is the more desirable. In case goods are saved for another season it is essential to see that they are very carefully packed, so that they will not be injured by dust or breakage.

There is a feature of Christmas and New Year's celebration in Missouri and the Southern States which is not known in the North and East. This is the use of firecrackers and other pyrotechnic demonstrations. Thus it is that the drug stores handle firecrackers, toy torpedoes, and other fireworks which only sell during Fourth of July season in other parts of the country. It is difficult to say just how this method of celebrating Christmas originated, but it is quite generally followed in the State of Missouri.

CHICAGO.

JOHN SCHOKE has purchased the pharmacy located at 845 Milwaukee avenue, corner Division street.

SECORD'S pharmacy has been removed from State and Van Buren streets to 53d street. This was owing to an enormous increase in the rental.

The C. J. FARIES Co., of St. Paul, Minn., manufacturers of Faries' Almond Cream, etc., has removed to this city, and established its quarters in the Calumet Building.

The firm of MARY E. MURRAY & Co., 1059 Washington Building, was recently organized for the manufacture of Murray's Almond Nut Cream and Salve.

The pharmacy at 100 North State street, formerly owned by A. S. COWAN, has been purchased by RICHARD TRUPPEL, proprietor of a store at 96 Wells street.

C. F. PFANNSTIEL has moved his pharmacy from Lake View to Rush street and Bellevue place.

J. S. FORD, of 232 Milwaukee avenue, is attempting to organize a stock company among the druggists of this city for the manufacture and sale of the "Sweet" remedies.

HENRY SCHROEDER, of Chicago and Milwaukee avenues, has moved into new quarters on the opposite corner. He has now one of the best appointed pharmacies in this city.

A pharmacy is to be opened very soon on Wabash avenue near 24th street.

J. B. KERR has disposed of his pharmacy at 182 South Desplaines street to F. L. MUELLER.

R. R. MARTIN, for many years the Chicago representative of Parke, Davis & Co., has resigned his position with that firm to take charge of other business interests.

WALTER F. MEYER has purchased the pharmacy formerly owned by Dr. Shugart and located at Ogden avenue and Harrison street.

The business of T. CROOKER, located at Loomis and Madison streets, has been suspended.

MR. LEBENTHAL is about to open a new store at Robey and West 12th streets.

E. B. STUART & Co. have purchased the store, formerly owned by T. N. JAMIESON, at 39th street and Cottage Grove avenue.

The dispensary department of the College of Physicians and Surgeons is now charging regular rates for prescriptions. This is quite gratifying to the pharmaceutical profession, and it is hoped that the other medical institutions will, in the near future, pursue the same plan.

OSCAR ALEX, the pharmacist at 48th and Loomis streets, was attacked one evening recently near his store by two pickpockets. He managed to escape from them, and, entering the rear door of his store, secured his revolver, with which he gave chase. Several shots were fired by him, but neither of the miscreants was injured nor have they been apprehended.

CHARLES L. FELDKAMP has returned from Bay City, Mich., and has purchased the pharmacy at North Clark and Frederick streets formerly owned by OTTO HOTTINGER.

GEORGE R. BAKER has disposed of his Lincoln Park store to OLD & MEYER.

The Acme Publishing and Engraving Company has threatened to enter suit against several pharmacists of this city for refusal, on the part of the latter, to accept and pay for a specified number of copies of a publication known as "Chicago of To-Day" on the ground of fraud and misrepresentation.

The Chicago College of Pharmacy held its semi-annual meeting on the 20th of October. The attendance was excellent. Aside from the routine business was discussed the present and prospective condition of the college, the outlook being quite flattering. The present class numbers over 200.

ENGLAND.

IT is a rather curious coincidence that the municipal authorities of both London and New York are just now perplexed with the subject of a pure water supply. In each case there appears to be a growing opinion that the supply is not above suspicion, and loud demands are being made for its purification and protection from further contamination. London has the more difficult problem to solve, as it is not only the purity but the adequacy of the supply that is in question. Moreover, there is a feeling, which is gaining every day, that this important subject should not be left to private companies, but become a department under the care of the county council to whom are relegated so many matters of public health. The greater part of our supply is taken from the Thames some twelve miles above London, and undergoes no other process of purification than that of filtration through successive layers of sand, varying from coarse gravel to finest sand. At the best it is evident that this method is only a variety of straining, and as the source is open to grave impurities little reliance can be placed upon it. The remaining portion of London's daily supply of 157,000,000 gallons is obtained from two sources, viz., from wells in the chalk of Kent and from rivers originating from springs in Hertfordshire. Most of the large London breweries have sunk artesian wells and have very good supplies of water. These wells are carried down below the clay to a depth of about 300 feet, when a thick stratum of chalk is encountered from which an excellent water is obtained. The analytical feature of this supply is the large quantity of free ammonia and almost total absence of albuminoid ammonia, nitrates, and nitrites. This is no doubt due to a process of reduction which at present is unexplainable. Warington, in his researches on nitrification, has shown that soil is capable always of converting ammonia into nitrites and nitrates if phosphates be present. This is due to two organisms, each acting separately, the one converting ammonia into nitrites, the other oxidizing nitrites into nitrates. Several of the wholesale drug firms have wells on their premises, but, as they are not artesian and only derive their supply from surface water, they are not much used. The health statistics of the city, however, do not show much cause for alarm, although the general purity of our supply, according to analytical data, is not equal to the Croton water. Thus the supply of the New River Company yields the following:

Chlorine	1.62
Nitrites	0
Nitrogen in nitrates	0.19
Free ammonia	0
Organic carbon	0.35
Hardness	17.08°

These results are expressed in parts per 100,000. Perhaps the chief noticeable difference is with regard to the nitrogen as nitrates, where the Croton water is vastly superior. I may mention that results are usually given in water analysis on this side of the Atlantic in grains per gallon, according to the recommendation of the Society of Public Analysts.

A considerable change in the present method of conducting the qualifying examination for pharmacists has been foreshadowed by the president of the Pharmaceutical Society. As noticed in your columns, the syllabus of subjects has recently been considerably extended, and now it is proposed to divide the examination into two parts. By this means a candidate will be examined on the first day in practical subjects alone, as practical dispensing, pharmacy, and chemistry. If a man passes these subjects he would the next day be examined in the remaining subjects of botany, materia medica, and theoretical pharmacy *vivâ voce*. At the same time it is proposed that the major examination, for the title of pharmaceutical chemist, shall be partly in writing and partly practical. There can be no doubt whatever that these proposals are immense improvements on the present methods, where in the minor examination a candidate is examined in no less than six subjects in one day. The physical ordeal has always been felt to be too trying, and I have noticed men almost fainting from the strain of excitement and absence of food. There is a tendency also to reduce the high standard of the major examination, so as to induce more minor men to go in for the higher qualification.

Prof. McFayden, who has succeeded Dr. Klein, F.R.S., in one of his appointments, has just published his method of obtaining and staining the tubercle bacilli. A little scraping from the diseased part is placed on a cover glass and pressed even and thin by means of another cover glass. The glasses are then separated, and after drying in the air a short time it is passed rapidly through the flame of a spirit lamp, which coagulates the albumen. The glass is then dropped into a test tube full of Ziehl-Neelsen's stain, previously heated, and after ten minutes removed and dipped quickly into diluted sulphuric acid (1 part of strong acid to 3 parts of water). It is then washed with water and finally rinsed in alcohol (60 O. P.), and when dry may be mounted on the usual slide with a drop of Canada balsam in xylol or benzol. Under a good lens magnifying at least 400 times, the bacilli will be found colored bright magenta, with a delicate pink background in the albuminous film. This method has some advantages over the usual double-stain method with magenta and methyl blue, but which is very successful. The greatest difficulty in my experience is not so much the staining as the recognition afterwards. In many tissues, sputa, etc., the bacilli are quite absent, although the presence of tubercles is apparent, and in all cases a high power with adequate substage condenser is necessary. Thus bacilli of anthrax can be plainly seen with a ¼ inch dry objective, but this is quite useless for tubercle bacilli. It is, however, well and clearly seen when present, after staining, with a $\frac{1}{12}$ inch oil-immersion lens and an achromatic condenser.

On this subject there is an interesting case recorded this week in one of our medical papers. A man died rather suddenly, and the post-mortem indicated a serious heart affection, but a section of the lung, when stained and mounted, showed numerous bacilli of anthrax. There was no possible theory of previous contact with anthrax, and the learned medico leaves it as a puzzle. It appears rather unfortunate that from only one microscopical examination this bacillus should have been designated anthrax, as possibly further examination with other stains, etc., would have demonstrated some radical difference between the two species.

London Market Report.

MINCING LANE, November 11th, 1891.

The past month has been very quiet, and there are very few improvements in value to note. Ergot has shown a steady increase; ipecacuanha, jalap, and chillies are all dearer. The new crop of saffron has arrived and is undoubtedly very fine, but the large yield this year will inevitably reduce prices. Opium is being firmly held, there being plenty of buyers at 1.92, but holders are asking 2.10. Advice from Asia Minor indicates that large sales have taken place in Talequali opium at about 1.74, chiefly for the Dutch Government and American markets. Codeia is dearer, but morphia is slightly easier. The cinchona sales, which included some 1,450 bales of Ceylon and East India barks, were featureless, the unit remaining unaltered at 1¼.

The chemical market has been very flat, tartaric acid receding and copper sulphate lower. Others unchanged in value and poor demand, but syndicate's prices firmly maintained for soda compounds.

The following are current prices:

Acid, Citric.......	per lb.,	$0.34	Mercury, Calomel,	per lb.,	$0.54
Oxalic.	"	.07	Corrosive Sublimate	"	.60
Tartaric.........	"	.26	Potash, Cyanide..	"	.52
Bleaching Powder........	per cwt.,	2.04	Bichromate.....	"	.08
Camphor, ref'd...	per lb.,	0.35	Chlorate...	"	.11
Cream of Tartar,	"	.20	Oil, Peppermint, H. G. H.......	"	3.33
Cinchona, red....	"	.12 @ .20	Morphia	per oz.,	.90
Bolivian........	"	.10 @ .16	Codeia...........	"	3.0
Copper, Sulphate,	per cwt.,	3.2	Saffron (new)....	"	.51
Ergot, Spanish...	per lb.,	.48	Soda, Bicarb.	per cwt.,	1.74
Ipecacuanha.	"	2.26	Caustic	"	2.34
Jalap.............	"	.42	Crystal........	"	.86
Mercury..........	"	.42			

NEBRASKA.

THE Board of Examiners of the Nebraska State Board of Pharmacy met at the Capitol Building, Lincoln, November 11th, 1891, and reorganized by the election of the following officers for the ensuing year: Max Becht, Omaha, president; W. D. Hallar, Blair, and M. E. Schultz, Beatrice, vice-presidents; James Reed, Nebraska City, treasurer; Henry D. Boyden, Grand Island, secretary. The president appointed the following committees: On Finance, Hallar and Shultz; on Violations of Law, James Reed; on Printing and Supplies, Boyden, Reed, and Becht. The subjects for examination were assigned as follows: Practical Pharmacy, James Reed; Theoretical Pharmacy, W. D. Hallar; Materia Medica, H. D. Boyden; Toxicology, Max Becht; Chemistry, M. E. Shultz.

At a meeting of the Examiners held the same day, the following members of the Board were present: J. E. Riggs, Lincoln; Max Becht, Omaha; W. D. Hallar, Blair; James Reed, Nebraska City; and Henry D. Boyden, Grand Island. Thirty-three applicants were present and examined, of whom the following-named persons were successful in passing the examination and received certificates as registered pharmacists: Frank Alley, Louisville; J. V. Beghtol, Friend; W. A. Brokaw, Cedar Bluffs; J. C. Brown, York; C. W. Dodson, Tecumseh; H. T. Davis, Chadron; J. W. Hooper, Upland; C. F. Holt, Friend; Ekie Jones, Friend; F. H. Jones, Springview; W. K. Johnson, Randolph, Frank Nevins, Exeter; Mrs. S. Royds, Ansley; H. B. Redmon, Henderson; D. J. Rusicka, Dodge, W. H. Seip, Lincoln; Albert L. Steidl, Crete; H. H. Traver, Palmyra; G. A. Thompson, Poma; I. W. Haughey, Elmwood.

All pharmacists who have changed their address are requested to report the same at once to the secretary. The Board adjourned to meet at Omaha, February 9th, 1892, in the parlors of Hotel Dellone, and at Lincoln, February 10th, 1892, in the State House.

HENRY D. BOYDEN, Sec.

GRAND ISLAND, NEBRASKA, November 12th, 1891.

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Membership in the American Pharmaceutical Association is obtained only by election at the annual meeting. "Every pharmacist and druggist of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, and those teachers of pharmacy, chemistry, and botany who may be specially interested in pharmacy and materia medica," are eligible for membership. For blank application and further information address Dr. H. M. Whelpley, 2729 Washington avenue, St. Louis, Mo., chairman of the Committee on Membership.

Correction.—The papers by Messrs. Peck, Adams, Ashley, and Bird, of which we printed abstracts on page 328, were prepared, not as theses, but for presentation at the meeting of the Michigan State Pharm. Association. We received this information too late to insert it.

A Pasteur Institute in Cochin China.—A Pasteur Institute was opened at Saigon, on June 1st, under the auspices of the French Government. Though primarily intended for the practice of anti-rabic inoculation, the work of the institute will extend over the whole field of microbiology.

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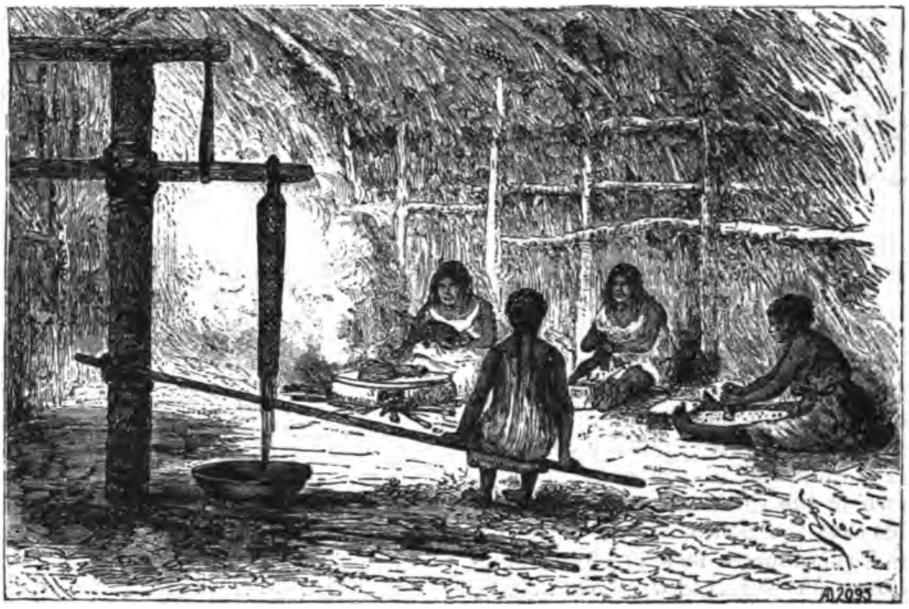
ANCIENT PRESSES.

The study of the progress of mankind in the art of manufactures is a subject of great attraction to the student of science; any detail, therefore, which bears upon the art adds one more link to the chain of knowledge.



Preparing Cassava.

Referring to the native Indians of the South American Continent, and more especially to the inhabitants of the vast regions of Guiana, it has been noted as a very remarkable coincidence that the decorative patterns which frequently ornament the borders of the "simarri," or grater (a flat slab of wood, surfaced with a resinous gum, embedded with numerous small pieces of flint upon which to grate edible roots), resemble the fret patterns of ancient times; the Greek key or meander device, so common in Egyptian and Assyrian ornamentation and in Etruscan and Greek vases, being of constant occurrence.

The coincidence is certainly striking, but a fact still remains with regard to which, so far as known, no attention has been hitherto paid. If we turn to the "matapi," or strainer (a long, cylindrical, plaited case, permitting of great circumferential expansion and contraction, wherein the grated roots are subjected to great pressure for the expulsion of their juices), its origin appears buried in oblivion. Some wild tribes go so far as to ascribe its knowledge as a gift imparted direct to them by the beneficence of their deity, but beyond this the question remains unanswered.

But once more do the long ages of the past cast back their beams of light upon the inquiries of the present, and so it is upon Egyptian monuments that we now find the desired and striking clue.

In the pages of Cassell's "Bible Dictionary" may be seen an illustration of an ancient Egyptian wine press. And clearly we have here the origin of the "matapi" of Guiana; and this, coupled with the remarkable use of the Greek—or rather shall we say the Egyptian?—key device, sets the mind pondering over time and space to discover, if it can, how it is that these modes of earliest decoration and manufacture by old-world African civilization have reached and still retain their hold in darkest regions, and after the lapse of centuries reappear upon modern civilization out of the very depths of the forests in the South American New World.—GEORGE S. PARKINSON in *Science Gossip*.

[Those who are familiar with the forms of ornament employed by savage people recognize this "key" pattern in many widely remote localities. We give an illustration of this in a specimen of basket-work from another source, and might add others. It seems reasonable to conclude that the use of such an ornament is spontaneous, being a natural arrangement of simple forms, and that it is not necessary or reasonable to infer from coincidence in its use that there has been any similarity in the origin of those who employ it.

We think Mr. Parkinson is also mistaken in his opinion that the Egyptian and South American presses are similar in principle of construction. The latter is of basket-work or of braided fabric, which admits of expansion to receive its charge, and which, upon being elongated, becomes smaller in diameter and thus exerts pressure upon its contents. The Egyptian wine press was evidently composed of some strong textile fabric, and compression was obtained by twisting—just as a laundress wrings a garment. The twisting of the filter bag would seem to be too plainly indicated in the illustration to be mistakable.

South American Basket with Greek Key-pattern.

Gigot's filter press, here shown, is a more recent adaptation of the same mechanical contrivance. In one figure the shape of the distended bag is given, and in the other its appearance when completely twisted.

It is not unlikely that the Egyptian vintner who first resorted to this mode of squeezing his grapes got his idea from seeing women wring the shirts after washing, and it is quite as probable that the South American savage would have used this form of press instead of his "*matapi*" if there had been any shirts to wash, or, indeed, any textile fabric known to him.

As a matter of interest in this connection we have reproduced an illustration of a South American household engaged in the preparation of cassava; some grating the roots, another sitting upon the lever which stretches the *matapi*, and still another making cakes upon a primitive hearth or cooking-slab of stone.—Ed. Amer. Drugg.]

Pyrotechny.

The following is an abstract of a paper by T. A. Ellwood, read at a meeting of the London Chemists' Assistants' Association (after *Chem. News*):

Pyrotechny was discovered by the Chinese, with whom it remained a secret for centuries. Not until the thirteenth century did Europeans discover the property which certain substances possess of imparting color to flame. The manufacture of fireworks has now become a scientific art. Its study necessitates a fair knowledge of chemistry, metallurgy, and the fundamental laws of mechanics. In manufacturing there are three important considerations:

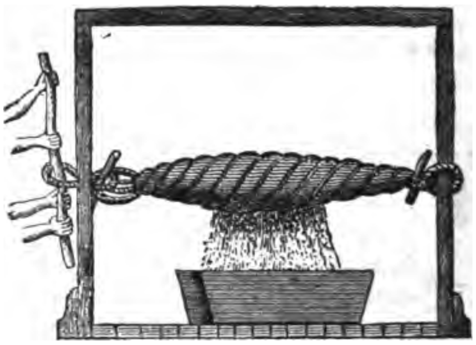
Oxidation.—The agents generally employed are chlorates and nitrates, their object being to promote combustion after heat is applied.

Influencing Agents.—Those which regulate the combustion, as sand or potassium sulphate.

The Active Ingredient.—To give the color desired. Camphor and lycopodium are used in theatres, potassium nitrate with lampblack for golden stars, copper filings for green, and zinc for blue, etc.

Of fireworks there are four kinds: (1) *Single*—example, the squib; (2) *terrestrial*—placed on the ground—as mosaics and waterfalls; (3) *atmospheric*, as the rocket and Roman candle; and (4) *aquatic.*

Composition.—Rocket: sulphur, 1 part; carbon (charcoal), 2 parts; nitrate of potassium, 4 parts; meal powder (as a diluent), 1 part.


Ancient Egyptian Wine Press.

Roman candle: sulphur, 4 parts; carbon, 3 parts; nitrate of potassium, 8 parts.

Pinwheel: Base: sulphur, 5 parts; nitrate of potassium, 9 parts; meal, 15 parts. Color as desired.

Bengal lights (poisonous): realgar or orpiment, 1 part; black antimony, 5 parts; red lead, 1 part; sulphur, 3 parts; nitrate of potassium, 14 parts.

Colored fires or stars: Blue: chlorate of potassium, 8 parts; calomel, 4 parts; copper sulphide, 5 parts; shellac, 3 parts.

Ditto, Green: barium salt, 16 parts; chlorate of potassium, 16 parts; sulphur, 5 parts; charcoal, 1 part.

Ditto, Yellow: oxalate of sodium, 2 parts; chlorate of potassium, 4 parts, with shellac.

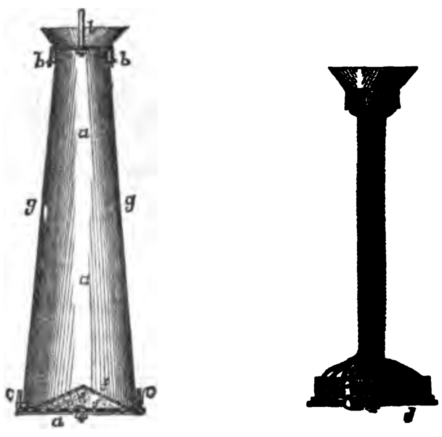


Fig. 1. Fig. 2.

Gigot's Filter Press.

Ditto, Mauve: chlorate of potassium, 28 parts; calomel, 12 parts; shellac, 4 parts; strontium nitrate, 4 parts; copper sulphide, 2 parts; stearin, 1 part.

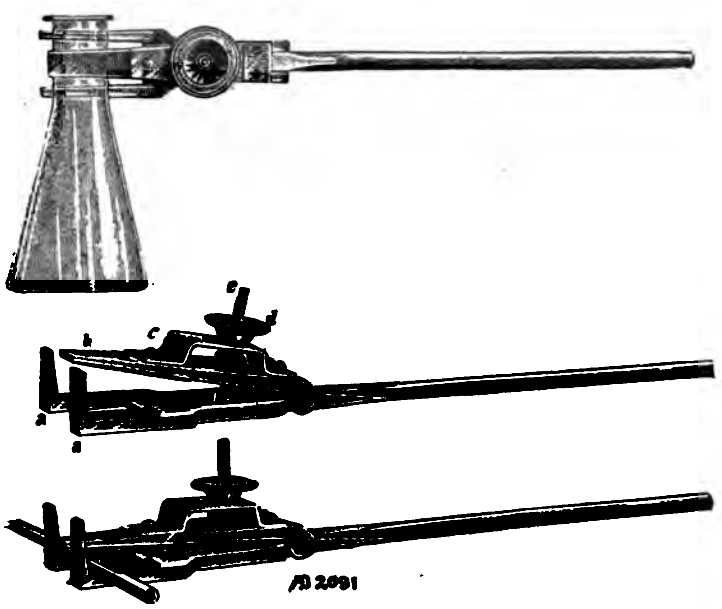
Ditto, Purple: chlorate of potassium, 16 parts; copper sulphide, 8 parts; calomel, 7 parts; sulphur, 2 parts.

Different shades are obtained by slight variation in composition.

[*Note by Ed. Am. Drugg.*—Though the original paper from which the above is abstracted gives the caution that each ingredient must be reduced to powder by itself, and care used in mixing, yet it seems proper to point out here again the absolute necessity of the *greatest caution* when working with chlorate of potassium or mixing it with other substances. It is always best to slightly dampen those ingredients which are least soluble in water, and to mix the chlorate in afterwards. Exposure in a *moderately* warm place will soon drive out the moisture again.]

UNIVERSAL HOLDER.

The accompanying illustrations represent a new universal holder, intended to replace the different holders of Bunsen's stand. The new holder is able to grasp not only thin glass tubing and rods, but also larger apparatus, such as flasks. It is made by Max Kaehler & Martini, of Berlin, either in aluminum-bronze, or brass, or iron.—*Zeitsch. f. angew. Chem.* [9091

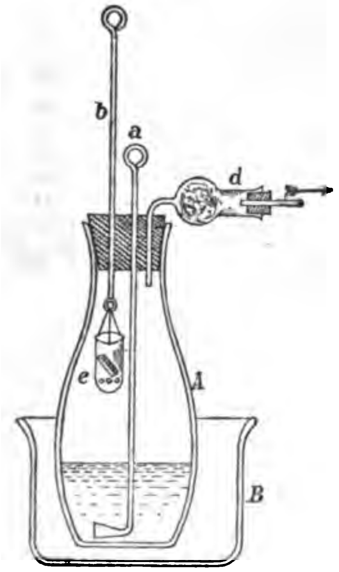


Kaehler & Martini's Universal Holder.

OXYGEN GENERATOR.

For the preparation of small quantities of oxygen by Kassner's method (action of barium dioxide upon potassium ferricyanide), Gawalowski recommends the apparatus here illustrated.

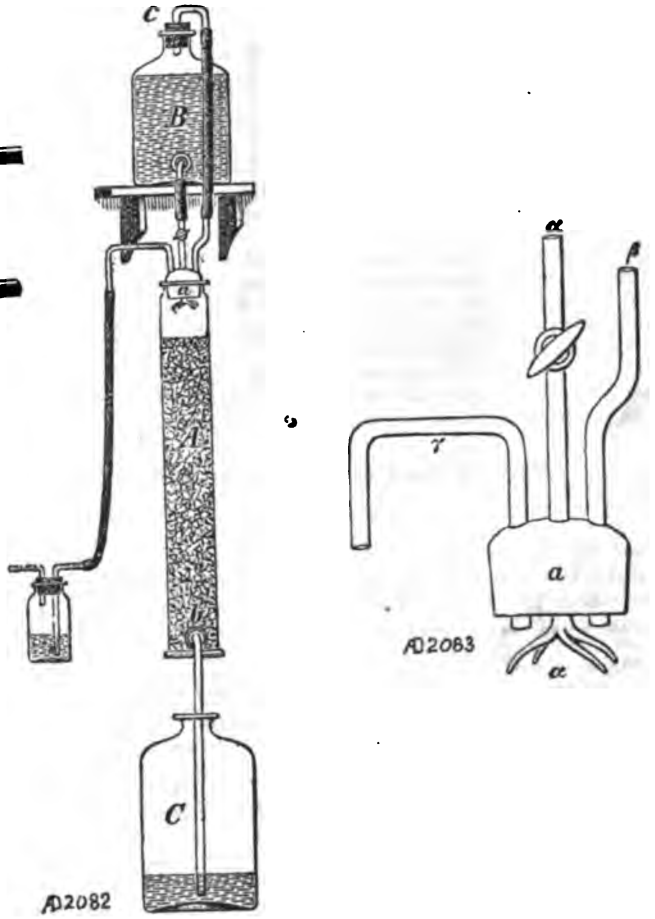
A is an ordinary gas-generating flask, into which finely powdered barium dioxide is introduced. It is provided with a triply perforated rubber stopper, carrying in the centre a stirrer, *a*, the lower end of which is turned sideways. Another perforation carries a rough (etched) glass rod, *b*, which can be easily pushed up or downward, and which carries at its lower end a small glass bucket, *e*, having a perforated bottom, and intended to contain crystals of ferricyanide of potassium. The third perforation carries a gas-delivery tube, *d*. When oxygen gas is wanted, the glass rod is pushed down until the glass bucket is immersed below the water which is previously poured on the barium dioxide, and the mixture is stirred up with the central stirrer. If a more rapid current is wanted, the flask may be set into lukewarm water.—*Zeitsch. f. angew. Chem.* [9088



Gawalowski's Oxygen Generator.

A CONSTANT GAS GENERATOR.

Prof. R. Ulbricht and O. Foerster have occasion to require for drying purposes a constant current of carbonic acid gas. Kipp's apparatus—the well-known ordinary generator for hydrosulphuric acid gas, etc.—does not answer well for this purpose, as it requires frequent recharging. They, therefore, arranged the apparatus here illustrated, in such a manner that the liquid products of the reaction would constantly pass off below while the current of gas escaped above.



Ulbricht and Foerster's Gas Generator.

B is the reservoir for hydrochloric acid, A is a long tube charged with pieces of marble, and C is a vessel receiving the solution of calcium chloride. Fig. 2 shows the stopper inserted into A, with its several tubes. Of these, *α* has a stopcock, and its inside end is branched into four arms for the better distribution of the acid. The tube *β* establishes a communication between the acid reservoir and the vessel A.

When the apparatus is to be recharged, it is only necessary to remove the stoppers *a* and *c*.

This same apparatus will also be found extremely serviceable for the generation of other gases, such as hydrogen, sulphuretted hydrogen, etc.—After *Chem. Zeit.* [9082-83

* * *

The Source of False Hair.—The English consul at Canton says that 80,000 pounds of human hair have been exported from that city during the past year, and that it comes mainly from those who have died of contagious diseases, mendicants, and criminals.

CORRESPONDENCE.

VOLUMETRIC ESTIMATION OF ACETATES.

Editors American Druggist.

GENTLEMEN: In your issue of October 15th I find a letter by Chas. Caspari, Jr., criticising my paper on the "Volumetric Estimation of Acetates," which was read before the Missouri Pharmaceutical Association and reprinted in the September 1st issue of the AMERICAN DRUGGIST.

The first column of the article deserves no reply, as it is merely an argument in favor of making our normal volumetric solutions on the basis of the hydrogen equivalent as against the molecular weight, and is evidently out of place in a letter correcting some errors which have crept into type. I clearly defined which was meant when I stated that "10 C.c. of the $\frac{N}{2}$ sulphuric acid should exactly neutralize 10 C.c. of volumetric solution of soda, U. S. Ph." The volumetric solution of this strength contains 49 Gm. H_2SO_4 per liter, and gives better results with methyl violet as an indicator than a weaker acid such as Dr. Caspari proposes. The turn of color is not so readily perceived as with other indicators (phenolphthalein, etc.), and it becomes necessary to lessen the error resulting from the tardy appearance of the blue color by using a strong volumetric solution and operating upon enough substance to bring the amount of acid well into cubic centimeters on the burette. Dr. Caspari's letter overlooks this when it lets 1 C.c. = 1 per cent in titrating Liquor ammonii acetatis. Here an error of $\frac{2}{10}$ C.c. would be one of $\frac{2}{10}$ per cent, while in my paper it would be an error of $\frac{2}{100}$ per cent.

The errors in the original paper were made either by the printer or my assistant in copying the manuscript. In Liquor ammonii acetatis 1 C.c. should correspond to $\frac{2}{10}$ per cent instead of 2 per cent. The error in the acetate of iron preparations is as much a mystery to me as it doubtless was to Dr. Caspari. I append the same table with all corrections made:

Plumbi acetas	Weigh	9.46	Gm.	Each	C.c.	acid	= 2	per cent	of	acetate.
Liq. plumbi subacetatis	"	13.7	"	"	"	"	= 1	"	"	"
Potassii acetas	"	4.9	"	"	"	"	= 2	"	"	"
Sodii "	"	3.4	"	"	"	"	= 4	"	"	"
Zinci "	"	5.92	"	"	"	"	= 2	"	"	"
Liquor ammonii acetatis	"	38.5	"	"	"	"	= 2/10	"	"	"
" ferri "	"	7.76	"	"	"	"	= 1	"	"	"
Tinct. " "	"	7.76	"	"	"	"	= 1	"	"	"

I take this opportunity to add a remark to my paper on "Elderberry Juice," which appeared in the AMERICAN DRUGGIST February 1st. At the time of writing the paper my experiments for using elderberry as an indicator in estimating phosphates were incomplete. I find it to turn at same number of cubic centimeters as rosolic acid or when the formula is Na_2HPO_4.

CLAUDE C. HAMILTON.

KANSAS CITY, MO., October 30th, 1891.

NEWS AND NOTES.

MICHIGAN.

THE annual meeting of the State Pharmaceutical Association, held in Ann Arbor, passed off pleasantly and without incident. The report of the Examining Board showed a total of 3,628 registered pharmacists and 550 assistants now in the State. The number examined during the year was 400, of which 157 were given first-class certificates and 111 assistants' certificates. The Board made complaint against 76 persons for violation of the pharmacy law, and succeeded in convicting 15, 9 cases being still unsettled. This makes a total of 50 convictions since the law has been in force, the fines paid amounting to $620. The prevailing sentiment seemed to be that the pharmacy laws should be made more stringent and comprehensive. It is to be hoped this will be done, for the sooner the incompetent, the unscrupulous, and the ignorant are weeded out of the ranks of pharmacists the better it will be for the profession and the community at large. It is a noticeable fact, in connection with the high standard of pharmaceutical education demanded in Michigan, that this State suffers less than almost any other from the evils of cutting. If the standard is raised, may we not expect to see a still further elimination of this evil? Undoubtedly. Force out the unqualified and unprincipled, and the qualified pharmacist will be fully able to take care of himself. Allow them to remain, and the entire profession will become demoralized and poisoned by their influence.

MR. FRANK YOUNG, a popular pharmacist of Detroit, died November 1st at his residence. He had a store on the corner of Monroe and Antoine, and was very well known and liked in the eastern part of the city. Mr. Young was a prominent member of the Knights of St. John, who will attend his funeral in a body. He was a graduate of the Philadelphia College of Pharmacy, and was but 28 years old at the time of his death.

During the recent disastrous fire which swept over the village of Carsonville, the store of DR. SMITH was damaged to the amount of $500.

DR. J. F. KEABLES, of Decatur, who had been seriously ill for the past six months, died at his home November 1st.

The Michigan Pharmaceutical Association has elected as president H. G. Coleman, Kalamazoo; vice-presidents, Stanley E. Parkill, Owasso; L. Paule, St. Ignace; A. S. Parker, Detroit. Chas. Parsons and Wm. Dupont, of Detroit, are chosen secretary and treasurer.

The National Wholesale Druggists' Association, at its meeting in Louisville last month, elected as president William A. Robinson, Louisville; vice-presidents, John McKesson, New York, H. T. Clark, Lincoln, J. H. Rhodes, Chicago, Charles Hubbard, Buffalo, Henry B. Gilpin, Baltimore; secretary, A. B. Merriam, Minneapolis; treasurer, S. M. Strong, Cleveland; board of control, R. D. Noyes, St. Paul, Alex. H. Jones, Philadelphia, J. W. Rankin, Atlanta, Geo. R. Hopkins, St. Louis, J. A. Tilman, Boston. The Association adopted the plan of the American Pharmaceutical Association for regulating the sale of proprietary remedies, and chose Montreal as the place for the next meeting.

BIBLIOGRAPHY.

TWENTY-SECOND ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS. Pp. 588, 8vo. Boston, 1891.

The subject of water supply is most elaborately treated, and numerous observations of the sources of supply throughout the State, with chemical and microscopical examinations of the water, are included. Quite as important may be considered the detailed advice given to various cities and towns upon the subject, as well as the general suggestions as to the selection of sources of supply. This chapter alone should render the report most valuable to those who contemplate a system for furnishing water to communities elsewhere.

The report of analysts upon foods and drugs is but slightly inferior in interest, and may be studied with profit. Surely the money expended by the Commonwealth upon the maintenance of its Board of Health is a profitable investment when it produces such manifest results.

◆

An Extemporaneous Platinum Crucible.—When a platinum crucible ought to be employed for combustion, and none is at hand, a good substitute for it may be made, according to H. N. Warren (*Chem. News*), from a piece of platinum foil, which is folded twice like a plain filter. It can easily be cleaned and used over and over again as long as the folded edges remain unbroken.

A brownish-red, clear, odorless liquid, of a very faintly acid reaction, and but slightly astringent taste. It contains 3.5 per cent of metallic iron.

On diluting 1 Cc. of it with 19 Cc. of water, and then adding 1 drop of silver nitrate solution, the liquid must appear clear by transmitted light.

On heating 5 Cc. of it with 5 Cc. of diluted nitric acid until the liquid has become yellow, then adding 4.2 to 4.5 Cc. of decinormal silver nitrate volumetric solution, and filtering, the filtrate should not be rendered turbid by the further addition of silver nitrate.

Liquor Ferri Peptonati.

Solution of Peptonate of Iron.

Peptonate of Iron prepared from 20 parts of Albumen.	
Brandy	200 parts.
Water	enough to make 2,000 "

Mix the liquid peptonate of iron obtained from 20 parts of dry albumen (by the formula printed on page 365 of the preceding issue of this journal), after solution has been effected by means of the hydrochloric acid, with the brandy and enough water to make 2,000 parts.

Liquor Hydrargyri Albuminati.

Solution of Albuminate of Mercury.

Egg Albumen, fresh	15 parts.
Bichloride of Mercury	1 part.
Sodium Chloride	4 parts.
Water	80 "

Beat the egg albumen to a foam, allow this to become liquid again by standing, and then add to it a solution of the two salts in the water. Set the liquid aside for two days in a cool and dark place, and filter.

A yellowish, faintly acid liquid, having a saline, afterwards slightly metallic, taste. It is not affected by hydrochloric acid or solution of soda. Hydrogen sulphide solution produces in it a black precipitate.

This preparation must be kept in the dark.

Liquor Hydrargyri Peptonati.

Solution of Peptonate of Mercury.

Mercury Bichloride	1 part.
Pepton, dry (see next)	3 parts.
Water	enough to make 100 "

Dissolve the mercury salt in 20 parts of water and mix it with a solution of the pepton in 10 parts of water. Collect the precipitate after one hour, gradually add it, under stirring, to a solution of 0.75 parts of sodium chloride in 50 parts of water, and when solution has taken place, add enough water to make 100 parts.

A yellowish liquid having the same properties as the preceding.

Peptonum Siccum.

Dry Pepton.

Light-yellow, light, spongy, readily friable pieces, or a whitish powder of a bitter but not repulsive animal taste, almost odorless, soluble in water in all proportions, forming a neutral or faintly acid liquid. The aqueous solution (1 in 20) is light-yellow and clear, or becomes clear by the addition of a small quantity of hydrochloric acid. Alcohol precipitates from it the pepton.

On treating a solution of 1 Gm. of pepton in 10 Cc. of water with 10 drops of solution of soda (15 per cent) and 5 drops of copper sulphate solution (1 in 20), a raspberry-red tint is produced.

The aqueous solution (1 in 20) should not be affected by heat, nor by the addition of nitric acid or solution of soda.

Lithium Carbonicum Effervescens.

[*Lithii Carbonas Effervescens.*]

Effervescent Carbonate of Lithium.

Lithium Carbonate	10 parts.
Sodium Bicarbonate	30 "
Tartaric Acid	20 "
Sugar	40 "
Alcohol	40 "

Mix the solids reduced to a No. 70 powder, add the alcohol, and knead it until it is converted into a coarsely granular, crumbly mass. Rub this through an enamelled colander, or through a tinned metal sieve having 10 meshes to the lineal inch ["having meshes 2 Mm. wide"], and then dry it, first at 20° and afterwards at 40° C.

Magnesium Boro-Citricum.

[*Magnesii Boro-Citras.*]

Boro-Citrate of Magnesium.

Magnesia, calcined	8 parts.
Boric Acid, in moderately fine powder	8 "
Citric Acid, in moderately fine powder	10 "
Water	4 "

Mix the solids, and afterwards incorporate the water. When the doughy mass has hardened (which will require only a short time), reduce the mass to a powder.

A white powder of a faintly bitterish taste and slightly acid reaction. When heated the salt swells and then carbonizes. If dilute hydrochloric acid is poured upon the carbonized mass, the liquid filtered off, and the filtrate supersaturated with ammonium carbonate solution, the addition of sodium phosphate solution will produce a white precipitate.

With a small quantity of water the powder yields a mushy solution. In several times its weight of water it dissolves to a clear liquid.

If a small portion of the salt be treated with a drop of hydrochloric acid and a few centimetres of alcohol, and the latter then ignited, the flame will show a green border.

A solution of 1 Gm. of the salt in 1 Cc. of water, after being acidulated with acetic acid, and afterwards mixed with 1 Cc. of potassium acetate solution, should remain clear, even after shaking. The filtrate obtained by treating the carbonized mass with dilute hydrochloric acid, when supersaturated with ammonium carbonate, should not become cloudy.

Proposed Improvement of Huebl's Iodine-Absorption Method.

Mr. Holde endeavored to ascertain the cause of, and remedies for, the discrepancies sometimes observed in determining the iodine-absorption number of oils. As the results of his experiments he recommends the following procedure: 0.3 Gm. of a non-drying oil, or 0.2 Gm. of a drying oil, is weighed out and dissolved in 18 to 20 Cc. of chloroform in a flask (presumably stoppered) of about 300 Cc. capacity; 50 Cc. of Hübl's reagent (see our last number, page 362), not more than fourteen days old, for a non-drying oil, and 60 Cc., not more than eight days old, for a drying oil, are then added. (Two tests are made of each oil.) The Hübl solution is allowed to act for two hours; 50 Cc. of the solution itself are titrated with sodium thiosulphate after the addition of 40 Cc. of 10-per-cent solution of potassium iodide, at the beginning of the determination, and 50 Cc. are kept in a well-closed flask until the determination is completed, and then titrated in the same manner, the mean of the two estimations being taken as the true value. The iodine unabsorbed by the oil is similarly determined after the addition of 40 Cc. of 10-per-cent solution of KI for a non-drying, and 50 Cc. for a drying oil, and 120 Cc. of water. Should the chloroformic solution of the oil become turbid while standing, more of the solvent must be added. The following are some of the results obtained: Linseed oil, 172 to 180; hempseed oil, 175 to 176; walnut oil, 139 to 143; sesame oil, 106 to 109; *cottonseed oil*, 110 to 115; crude rape oil, 100 to 108; refined rape oil, 100 to 107; peanut oil, 1.2 to 101.5; *olive oil*, 79 to 84; sesame oil, 59.1 to 81.7.—*Mittheil. d. K. tech. Versuchsanstalt*, and *The Analyst*, 1891, 219.

[The abstractor adds the following note: "It is known to most analysts dealing with oils that a period longer than two hours is desirable to secure full absorption, and that the alcoholic solution of iodine and mercuric chloride which constitute, when mixed, Hübl's solution, are best kept separate and mixed only when wanted. The great loss of strength observed in Hübl's solution on keeping is thus avoided." To use Hübl's solution fresh, as recommended by the abstractor, is against the experience of most analysts. It would be desirable to examine into this point more in detail.—Ed. Am. Drugg.]

American Druggist

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EDITORIAL.

Preparing Small Quantities of Solutions of Definite Specific Gravity.

ON page 346 of this volume we gave an abstract of a paper on this subject by Carl Mueller.

The formulas there given, as well as the examples, are based on the assumption that the diluent is water. Mr. John P. Piquett, of Baltimore, draws our attention to the fact that our note attached to the paper, and some passages in it, may be misunderstood. We did not mean to convey the impression that, when the diluting liquid was *not* water, but, say, a more dilute solution of the same substance which is contained in the more concentrated one, the same formulas, as printed, would answer. Of course the density of this diluting liquid, unless it is water, must be taken into account. Hence equation No. 2 (where $\frac{W}{3}$ is a misprint for $\frac{W}{S}$), to be generally applicable, should have the following shape, d denoting the specific gravity of the diluting liquid:

$$x = \frac{W}{S} \cdot \frac{(S-s)d}{s-d}$$

NEWS AND NOTES.

CHICAGO.

AUG. A. E. VENN, a former drug clerk of this city, is at present taking a course of instruction at the medical department of the University of Pennsylvania.

The executive committee of the Illinois Pharmaceutical Association held a meeting at the Sherman House, November 19th.

A new drug store is being established at West Madison street and Hoyne avenue; a new one is also to be opened in the building under process of erection at 34th and State streets.

Mr. MERRILL has purchased the store formerly owned by C. B Allen, and located at North Clark street and North avenue.

JOHN L. PORTER, the druggist at 2401 Indiana avenue, is studying medicine at the Chicago Medical College.

S. P. HERRON has established a new pharmacy on 26th street, between Wabash avenue and State street.

R. WARREN has purchased the pharmacy located at 31st street and Indiana avenue, formerly owned by L. L. Adams.

FRANK MAREs has disposed of his branch store at 869 Laurel street, corner of 32d street, to John Mikolashek.

WM. K. FORSYTH, the pharmacist at 31st and State streets, has been quite ill for about two weeks, but is now able to be about again.

A. E. EBERT and W. BODEMANN were the retail druggists of this city who represented the retail trade at the Louisville meeting of the National Wholesale Druggists' Association; G. P. Engelhard, of the *Western Druggist*, was also present, and made an excellent address bearing on the cut-rate problem.

PETER VAN SCHAACK, the wholesale druggist, has returned from his tour abroad.

R. C. FRERKSEN has removed his store from North California avenue to 1201 West North avenue, corner of Sheridan avenue.

OTTO DOERLAMM has disposed of his store at 1559 West 12th street to Guckenheimer & Lawrence.

ALFRED P. KNIGHT, at 33d and State streets, has embellished his store with an entire new set of fixtures.

The pharmacy at 381 West Indiana street has been purchased by H. O. Berg & Co.

New pharmacies have been established by NIELS BRORSON, at 682 West Division street; by GUSTOF CALLVIN & Co. at 119 Laughton street; by A. GAEBLER & Co. at 51st street and Centre avenue; by BRUNO GOLL at 367 West Van Buren street; and by JOHN M. RAUSCH at 47th and Evans avenue.

FRED P. KENNEDY has purchased the pharmacy at Garfield Boulevard and State street, formerly owned by F. J. Lindgerg.

ERNEST C. RIEBEL has purchased Dr. Caldwell's pharmacy at 711 West 43d street.

O. E. COPPOCK & BRO. have disposed of their store at 1454 West Lake street to C. B. Springer.

KARL J. STAMM has purchased the store at 771 West Lake street, formerly owned by A. S. Stoddard.

A. THIES & Co. have purchased R. Waldin's pharmacy at 41st and State streets.

E. J. WARDEN has purchased F. C. Brookes' pharmacy at 290 63d street.

J. H. SISSLER has disposed of his pharmacy at 5103 Wentworth avenue, to A. E. Zuber & Co.

G. F. WETHERELL has purchased the pharmacy at 5400 South Halsted street, formerly owned by John Mohlzahn.

GENERAL.

THE many friends of Mr. J. H. STEIN, of Reading, Pa., an ex-president of the State Pharmaceutical Association, will be pained to learn of his serious illness.

MR. D. C. ANCHERBOUGH, of Hagerstown, Md., an ex-president of the State Pharmaceutical Association, is confined to the house by illness resulting from too persistent attention to business. It is hoped that rest will soon enable him to be about again with renewed vigor.

The Cumberland Valley produces some strange freaks in the apple line. In a drug store in Chambersburg is exhibited one composed one-half of russet variety and the other half pippin. It is a perfect apple and grew on a pippin tree. The nearest russet tree was 100 feet away. In Hagerstown is shown an apple that when picked this fall weighed 32 ounces.

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2 gal
256+

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